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PLYMOUTH MARINE FAUNA

Second Edition, 1931.

Being Notes of the Local Distribution
of Species occurring in
the Neighbourhood.

Compiled from the records of the Laboratory of the
Marine Biological Association.*

(With one Chart)

*It is hoped that main references to this paper may be made under
“ Marine Biological Association.”

The names of those responsible for any particular record will be
found by consulting the list of initials on pp. 20-24.

PLYMOUTH :

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INTRODUCTION.

THE present account of the marine fauna of the Plymouth District is based on that published in 1904 (Plymouth Marine Invertebrate Fauna. *Journ. Mar. Biol. Assoc. VII*, 1904, *pp.* 155-298) and is arranged in a similar way. A section on the Fishes has been added. A general account is first given of certain typical areas, their physical conditions are briefly described, and a short list is added of the more common and characteristic species which are found in them. This description of the grounds is followed by a general list of the species which have been recorded in the whole area investigated, and the local distribution of each, so far as it is shown from the laboratory records, is given. The information supplied in the two sections of the report when combined furnishes for each species a general idea of the conditions under which it lives.

Some explanation is necessary as to the scope of the general list. It is not intended to be a complete list of all species which have been recorded from the Plymouth district,* but only of such as have been found in recent years as a result of the work carried on at the Plymouth Laboratory and for which the exact locality of capture is known. All records which appeared to be in any way questionable have been deliberately omitted. Omissions, which in some groups especially are known to be numerous, are easily made good at a later date, whilst false records are less readily corrected.

In all cases the initials of the person or persons responsible for a record have been given, but it must not be supposed that the persons so indicated were the first or only ones to find the species in the locality indicated. During the course of preparing this paper for the press it has been frequently necessary, especially in the case of the common and widely distributed species, to frame a general note expressing facts which have for long been well known in the Laboratory, but in order to fix responsibility such notes have been followed by the initials of the person by whom they were framed. In editing the notes, care has been taken that the collection of records for each species shall, as far as possible, give a not incorrect indication of the abundance and distribution of the species in the Plymouth district.

Many of the records have already been printed in the *Journal of the Association* and elsewhere. It has not, however, been thought necessary in all cases to give detailed references, as a classified list of papers dealing with work done in the Laboratory has already been published (*Journ. Mar. Biol. Assoc.*, Vol. XV, 1928, p. 753).

As regards the question of nomenclature, whilst the names used are in general those which it is thought will be finally adopted by zoologists, we have not attached undue importance to this aspect of the matter, but by supplying in each case one reference to a good description (preference being given to one accompanied by a figure or to one in a recognised monograph of the group),

*Records for Plymouth previous to 1888 are summarised by Heape, "Preliminary Report upon the Fauna and Flora of Plymouth Sound," *Journ. Mar. Biol. Assoc.*, Old Series, ii.

we have endeavoured to leave no room for doubt as to the precise species which the name is intended to indicate.

The great amount of detailed work which the preparation of the original edition of this report entailed was carried out chiefly by Mr. R. A. Todd and by Mr. S. Pace, and the whole was critically revised and prepared for the press by Mr. Pace. For the present edition the bulk of the labour has been done by Dr. M. V. Lebour, whilst the whole has been revised and prepared for the press by myself, with much help from Miss M. A. Sexton.

In the present revision many of the groups have been submitted for critical examination, as before, to one or more specialists. Taking the groups in the order in which they are printed, the following notes as to those who have chiefly assisted in their preparation are given.

PROTOZOA. Most of the group is classified in accordance with Professor J. S. Dunkerly's revised classification in Sedgwick's "Student's Text Book of Zoology," Second Edition, 1929. The Dinoflagellates, however, are taken from Lebour's "The Dinoflagellates of Northern Seas," 1925, and Dr. Helen Pixell-Goodrich has revised the Sporozoa. The Foraminifera are taken chiefly from a recent paper by Mr. E. Heron-Allen and Mr. A. Earland. The Ciliophora are mainly taken from Mr. W. De Morgan's papers (1924-26)*

PORIFERA. The list has been revised by Mr. M. Burton, with advice from Dr. G. P. Bidder as to some of the species. Collections made at Plymouth by Mr. M. de Laubenfels of California and named by him have been helpful.

HYDROIDA, ANTHOMEDUSAE, LEPTOMEDUSAE and other **MEDUSAE** have again been revised by Mr. E. T. Browne and the names used are those recommended by him.

ALCYONARIA. Submitted to Professor S. J. Hickson.

CERIANTHARIA and **ZOANTHINARIA.** Revised by Prof. T. A. Stephenson and Mr. W. E. Evans of Edinburgh.

CTENOPHORA. Named from Krumbach, *Die Tierwelt der Nord- und Ostsee* (1927)

TURBELLARIA. The late Professor F. W. Gamble's records (1893) used in the 1904 Fauna List have again been the basis for this group. For classification and nomenclature of the Acoela and Rhabdocoelida von Graff (1905 and 1913) has been followed.

CESTODA. Included for the first time and very incomplete. Based chiefly on records by Woodland (1927 a. and b.)

TREMATODA. Included for the first time. Based chiefly on Dr. W. Nicoll's papers (1909-14)

NEMATODA. Included for the first time. Very incomplete.

NEMERTINI. Based chiefly on Miss Wijnhoff's records published in the *Journ. Mar. Biol. Assoc.* (1912)

ARCHIANNELIDA and **POLYCHAETA.** Revised by Dr. E. J. Allen and chiefly based on his list published in the *Journ. Mar. Biol. Assoc.* (1915). Classified according to Fauvel, *Faune de France* (1923 and '27)

OLIGOCHAETA. Probably very incomplete.

HIRUDINEA. Probably very incomplete.

MYZOSTOMARIA. Only one recorded.

GEPHYREA. Classified according to Fischer, *Die Tierwelt der Nord- und Ostsee* (1925)

ROTIFERA. One recorded only.

PHORONIS. Only two species known from the district.

*See Literature List at the end.

CLADOCERA. Classified according to Apstein, *Nordisches Plankton* (1901)

OSTRACODA. Almost entirely made up of old records by the Rev. Canon Norman. Classified according to G. O. Sars, *Crustacea of Norway* (1928). Help given by Professor H. Graham Cannon and Dr. I. Gordon.

COPEPODA. Classified according to G. O. Sars, *Crustacea of Norway* (1903-1921), with help from Dr. R. Gurney. The parasitic forms, included for the first time, are based chiefly on records by Bassett-Smith (1896) and Leigh-Sharpe (1916-1928)

CIRRIPEDIA. Classified according to Krüger, *Die Tierwelt der Nord- und Ostsee* (1927)

CUMACEA. Classified according to G. O. Sars, *Crustacea of Norway* (1900). Some of the records of *Diastylis* confirmed by Dr. C. Zimmer.

LEPTOSTRACA. Only one species known from the district.

ISOPODA. Classified according to G. O. Sars, *Crustacea of Norway* (1899). Revised by Professor W. M. Tattersall.

AMPHIPODA. Classified according to Chevreux and Fage, *Faune de France* (1925). Revised by Mrs. E. W. Sexton and Professor W. M. Tattersall.

SCHIZOPODA and EUPHAUSIACEA. Classified according to Zimmer, *Nordisches Plankton* (1909). Revised by Professor W. M. Tattersall.

DECAPODA. Classified according to Kemp (1910), Selbie (1914 and 1921), and the Brachyura, Borradaile (1907), slightly modified according to Lebour (1928)

PYCNOGONIDA. Classified according to Meisenheimer (Pantopoda), *Die Tierwelt der Nord- und Ostsee* (1925)

INSECTA. The Diptera based on Colonel Yerbury's list, *Journ. Mar. Biol. Assoc.* (1919) and revised by Mr. C. W. Bracken; the Coleoptera based on Mr. J. H. Key's list, *Journ. Mar. Biol. Assoc.* (1917) and revised by him.

MOLLUSCA. Classified on the advice of Mr. R. Winckworth, who has revised the nomenclature of the Lamellibranchiata and to a less extent that of the Gastropoda. The Nudibranchs are classified according to Iredale and O'Donoghue (1923). The Cephalopoda have been revised by Mr. G. C. Robson.

ECHINODERMATA. Classified and named according to Mortensen, *Handbook of the Echinoderms of the British Isles* (1927)

BRYOZOA. Mainly based on the 1904 Fauna List, Hincks' names being used (Hincks, 1880)

TUNICATA. Revised by Dr. N. J. Berrill, and based chiefly on his paper in the *Journ. Mar. Biol. Assoc.* (1928). Nomenclature generally that of Hartmeyer "Ascidacea." Danish Ingolf-Expedition, Vol. II (1923-24)

ENTEROPNEUSTA. One record only.

CEPHALOCHORDA. Amphioxus only.

PISCES. Mr. E. Ford is responsible for this list, the nomenclature being taken from Duncker, Ehrenbaum, Kyle, Mohr, Schnakenbeck from *Die Tierwelt der Nord- und Ostsee* (1925-1929).

The description of the grounds remains practically as it was in the 1904 Fauna List, prepared by myself with the assistance of Mr. S. Pace.

Three Plankton Stations off Plymouth referred to in the list are at the following positions:—

L 4 Half way between Rame Head and the Eddystone. Lat. 50° 15' N., Long. 4° 13' W.

L 5 Eddystone, 10 miles S. 42° W. from Breakwater Lighthouse.

E 1 Ten miles S.W. from the Eddystone. Lat. $50^{\circ} 02' N.$, Long. $4^{\circ} 22' W.$ Depth 40 fathoms.

The fauna of the Salcombe Estuary has now been included. A description of the grounds in that estuary is given in the paper by Allen and Todd, *The Fauna of the Salcombe Estuary*, 1900.

The thanks of the Association are due to those specialists who have been good enough to revise the lists, as well as to all who have made the records and allowed them to be used.

E. J. ALLEN.

Plymouth, December, 1930.

DESCRIPTION OF GROUNDS

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The area dealt with in this report extends from the shore to a depth of from 30 to 35 fathoms and may be considered as limited on the seaward side by a line running westwards from Salcombe, passing outside the Eddystone Rocks and Hand Deep, and then drawing northwards and meeting the coast at Looe. The length of such a line is about 35 miles, and the greatest breadth of the sea area included within it (from Plymouth to beyond the Eddystone) is from 14 to 15 miles. Roughly speaking, this area may be said to lie within a radius of 15 miles from the Laboratory. The area contains a number of typical tidal rivers (Hamoaze, Cattewater, Yealm R.), the large sheets of enclosed and sheltered sea represented by Plymouth Sound, the mouth of the Yealm, and Salcombe Estuary, and a considerable stretch of coastal water exposed to the full force of the waves of the English Channel. The fauna of an area dredged by Crawshay (1912) S.W. of the Eddystone, with depths of 40-50 fms. is also included.

Before giving the detailed list of the fauna inhabiting the area, it will be convenient to review the general conditions prevailing in its different parts. In this way it is hoped that some conception, even if it be an imperfect one, of the nature of the influences which limit the distribution of the different species may be formed by those having no personal knowledge of the neighbourhood.

PLYMOUTH SOUND AND THE ADJACENT TIDAL RIVERS.

Plymouth Sound must be regarded as an enclosed and sheltered arm of the sea, into which the two tidal rivers, the Tamar (with its estuary the Hamoaze) on the west, and the Plym (with its estuary the Cattewater) on the east, discharge their waters. The fauna and the flora of the Sound, in their general nature, are marine rather than estuarine. The typical estuarine species of the Hamoaze and Cattewater occupy no predominant place in their composition, and the effect of the fresh water entering the area does not appear to

be great. On the other hand the conditions in the Sound differ from those obtaining on the open coast, chiefly in respect to the force of the action of the waves, and possibly also to the degree of circulation of the waters, both being greatly modified by the presence of the Breakwater.

The fauna and flora of the Sound are comparable to those found near the mouths of the different estuaries along the south coasts of Cornwall and Devon : e.g. Salcombe Estuary below the Salstone (*cf. Journ. Mar. Biol. Assoc.*, Vol. VI, p. 151), Yealm Estuary below the junction of Newton Creek with Yealm River.

Shores of the Sound.

No attempt will be made to give a detailed account of the whole coast-line, but typical portions, which offer the best opportunities for collecting, will be described.

The shores of the Sound are for the most part rocky, with gravel and stones between the rocks. Fine sand in small patches is exposed here and there at extreme low water, but there are no stretches of sandy shore.

Rum Bay. This term is used as a general name for the shore from Batten Breakwater to Jennycliff Bay.* It is a moderately sheltered stretch of coast, with low rocks of a very friable shale, which dip seawards and form ridges parallel to the line of coast. Near low-water mark the ground between the rocks is for the most part very stony, but fine sand and gravel are found at intervals. The low shale **rocks** are covered, between tide-marks, with *Fucus*, *Pelvetia*, *Ascophyllum*, and other **brown** weeds, occurring in definite zones, whilst at dead low water *Laminaria* is plentiful. The weeds and rocks are the home of the usual shore Gastropods of the district (*Nucella lapillus*, *Patella vulgata*, *Littorina neritoides*, *L. rudis*, *L. littoralis*, *Gibbula cineraria*, *G. umbilicalis*, *Calliostoma zizyphinus*, *Ocenebra erinacea*), occurring each at its proper tidal level, as well as of the Polychaetes *Nereis pelagica* and *Eulalia viridis*. The **overhanging ledges of rock** give shelter to colonies of encrusting sponges (*Hymeniacidon sanguinea*, *Halichondria panicea* and *Grantia compressa*), compound Ascidians (*Botryllus schlosseri*, *Botrylloides leachi*), and Bryozoa (*Umbonula verrucosa*, *Crisia*), upon which Nudibranchs (*Archidoris britannica*, *Aeolidia papillosa*) feed.

On the *Fucus* the Hydroid *Dynamena* (*Sertularia*) *pumila*, the Bryozoa *Flustrella hispida* and *Membranipora pilosa*, and *Spirorbis borealis* occur in quantity, and, on the *Laminaria*, *Membranipora membranacea* in large patches. *Clava squamata* and *Coryne muscoides* are also often plentiful.

The cracks and **crevices between the layers of shale** shelter a characteristic and typical fauna, of which *Terebella lapidaria*, *Amphitrite gracilis*, *Polydora flava*, *Potamilla reniformis*, and *Phascolosoma minutum* are representative species of the higher and intermediate tidal zones, whilst *Marphysa sanguinea* and *Polymnia nebulosa* occupy a similar situation near low-water mark.

The patches of **gravel and coarse sand** contain at the higher tidal levels *Audouinia tentaculata* in large numbers, and the intermediate and lower zones are characterised by the presence of large *Nephtys caeca*, *Sthenelais boa*, *Perinereis cultrifera*, and *Glycera convoluta*.

Patches of **fine sand**, the most productive of which lies immediately south of Batten Castle, are found to contain *Arenicola marina*, *Lanice conchilega*

*The term Rum Bay, as here used, includes both Batten Bay and Rum Bay of the Admiralty charts.

(in sheltered situations near rocks), *Nephtys caeca* and *N. hombergi*, *Pectinaria koreni*, *Scoloplos armiger*, *Magelona papillicornis*, *Poecilochaetus serpens*, *Scolecoplepis girardi* (in black muddy sand), and a number of other sand-burrowing Polychaetes, the burrowing brittle star *Acrocynida brachiata*, and the Lamellibranchs *Cultellus pellucidus* and *Paphia (Tapes) pullastra*.

On **stony ground** the following species are met with in considerable abundance beneath the stones: *Gammarus marinus*, *Porcellana platycheles*, *Cancer pagurus*, *Carcinus maenas*, *Portunus puber*, *Nebalia bipes*, *Galathea squamifera*, *Lepidonotus clava* and *L. squamata*, *Amphipholis squamata*, *Asterina gibbosa*, *Ophiothrix fragilis*, *Leptoplana tremellaris*, *Botryllus schlosseri*, *Actinia equina*, and during the winter months *Goniodoris nodosa*.

At the western end of Rum Bay, under Batten Castle, the shale joins the Plymouth **limestone**, and there is a mass of high rocks of the latter kind, with a fauna similar to that described in a subsequent paragraph.

Drake's Island and Mount Edgumbe. From their position off the mouth of the Hamoaze Estuary, the shores of Drake's Island and Mount Edgumbe are under the influence of tidal streams of considerable force, whilst at the same time they are sheltered from the south-west, and hence not exposed to the most violent wave action. The shores of Drake's Island are for the most part rocky, the rocks, composed of a hard grit, being generally steep and high. Between the rocks are small patches of stony ground, and of sand and gravels of various textures. The shores of Mount Edgumbe resemble the stony patches on Drake's Island, and may be treated with them.

The fauna on the rock faces resembles that at Rum Bay, and needs no further detailed description beyond a notice of the fact that owing to the steeper character of the shore and the height of the rocks, the extent of surface exposed at each of the tidal levels becomes very much reduced, so that those animals which are restricted to a particular zone are represented by a relatively smaller number of individuals.

The overhanging ledges of rock are larger and more profusely covered than those at Rum Bay, but the same species are plentiful. Perhaps the most important addition to be made to the list given for Rum Bay is the Ascidian *Clavelina lepadiformis*, which during some summers has been very abundant beneath these ledges.

The characteristic fauna in the crevices of the soft shale at Rum Bay is not so marked at Drake's Island, though *Marphysa sanguinea* and *Polymnia nebulosa* are plentiful in crevices at dead low water.

On stony ground between the rocks at Drake's Island and along the Mount Edgumbe shore, in addition to the species found under similar circumstances at Rum Bay, there may be found beneath the stones, more plentifully than at the latter locality, specimens of *Cucumaria saxicola*, *Cucumaria normani*, and *Psammechinus miliaris*, whilst *Myriothela cocksi* is very frequent attached to the under surface of the stones.

On the south side of Drake's Island a patch of clean shell gravel is exposed, which is probably continuous with the shell gravel of Queen's Ground (cf. p. 13). In addition to numerous specimens of *Carcinus maenas*, which are often of variegated colours matching the colour of the shell gravel, the crab *Pirimela* is found, whilst in the gravel *Glycera gigantea* occurs.

On the north-east side is a patch of sand, which is the most characteristic bit of clean even-grained sand in the district. Its fauna includes *Ammodytes*, *Natica alderi*, and *Spisula solida*.

A *Zostera*-bed exposed on the north side of the Island contains numerous

Solen, occasional specimens of *Echinocardium*, whilst a patch of a few square yards of harder sand is crowded with *Lutraria lutraria*.

Limestone Shores (Rocks below Laboratory and under West Hoe ; Rocks at Batten). The rocks on the limestone shores differ from the shale rocks which have been described at Rum Bay, in being much higher, in forming a large number of rock pools at the higher tidal levels, and in being of a much harder and closer texture, with few cracks and crevices. The rock fauna at the higher tidal levels, therefore, shows special features on the limestone shores, whilst the fauna characteristic of the cracks and crevices between the layers of the shale is not represented. The upper portions of the rocks are densely covered with barnacles, amongst which the molluscs *Otina otis* and *Leucopepla bidentata* are plentiful. The sides of the rock pools are covered by growths of Coralline, red and green seaweeds, Hydroids such as *Syncoryne gravata*, *Clava squamata*, small *Tubularia*, and the sponges *Leucosolenia botryoides*, *L. complicata*, *L. variabilis*, and *L. coriacea*. In certain of these pools the Archiannelid *Dinophilus taeniatus* is found in great numbers. *Hiatella rugosa* and *Cliona celata* are abundant, boring in the limestone.

In other respects the fauna on the limestone rocks does not greatly differ from that on the shale, the free-living animals being almost exactly the same. Some of the overhanging ledges are densely covered with the Ascidian, *Dendrodoa grossularia* and *Potamilla reniformis* is very abundant.

The Breakwater. The most interesting feature of the fauna of the Breakwater is the collection of animals which are found boring in the limestone of which it is built. To such an extent is the stone eaten into by various animals that considerable damage is done to the structure, and constant repairs are called for. In a stone which has been injured through this cause the outer surface, to the depth of about a quarter of an inch, is converted into a honey-combed friable mass through the ravages of the boring sponge *Cliona celata*, whilst at frequent intervals larger holes, each of which may have a diameter of a quarter of an inch, and may pierce the stone to the depth of one inch, are formed by the boring mollusc, *Hiatella rugosa*. To these two animals most of the damage is due, but in addition there are found a few holes formed by the mollusc *Gastrochaena dubia*, and many by the Polychaetes *Dodecaceria concharum*, *Polydora ciliata*, *Polydora hoplura*, and *Potamilla reniformis* (the *Sabella saxicava* of Quatrefages). *Dodecaceria* forms holes of oval or figure of eight section, which may penetrate for a depth of several inches into the heart of the stone ; *Polydora ciliata* forms small U-shaped burrows, open at each end, whilst *P. hoplura* makes similar burrows of larger size.

Other features of the fauna of the Breakwater are the abundance of the anemone *Corynactis viridis*, and *Diadumene cincta*, of *Caryophyllia smithi* and of *Galathea strigosa*. Large nests of *Lima hians* have also been found there.

Dredging and Trawling Grounds of the Sound.

The greater part of Plymouth Sound consists of comparatively shallow water (4-6 fms.) with a bottom-deposit of fine muddy sand. Winding through this is a channel of much deeper water, which represents the old river bed of the Tamar. After leaving the Hamoaze (the estuary of the Tamar) this deep channel turns northwards until it strikes the northern shores of the Sound close to Millbay, where, bending sharply to the eastward, it attains a depth of 23 fathoms. The channel continues to run eastwards, keeping within a short distance of the shore but gradually diminishing in depth until it reaches the

Mallard Shoal, where, after passing southward between this and the Winter Shoal, it becomes lost in the shallow water forming the central part of the Sound (4-6 fms.). It is in this channel, and in the two channels at the eastern and western ends of the Breakwater, that stony ground suitable for dredging occurs. The greater part of the rest of the Sound, having a bottom of fine sand and mud, is better worked with trawls. The principal grounds referred to in the records are the following :—

Millbay Channel (14-23 fms.). The deep channel off Millbay is one of the most productive dredging grounds in the Sound. The dredge brings up masses of stones of varying size (chiefly limestone), with a few shells, all free from any growth of red or brown seaweeds. The stones are generally covered with a good deal of brownish mud, and are much honeycombed by the boring sponge *Cliona celata*, and by *Hiatella rugosa*, *Polydora ciliata*, and *Dodecaceria concharum*. Sponges, compound Ascidians, *Nemertesia* (*Antennularia*) *antennina*, and small Hydroids and Bryozoa are numerous; a great variety of small Polychaetes, more especially Phyllodocids and Syllids, are hidden amongst the cavities on the surface of the stones, and masses of tubes of *Filograna implexa* are frequent.

The deepest part of the channel, which forms a deep pit or hole, is remarkable for the abundance of *Antedon bifida*, the dredge often coming up half full of these Echinoderms. From the sides of the pit *Tubularia indivisa* is often obtained in quantity.

Asia Shoal. Another productive dredging ground lies along the northern edge of the Asia Shoal, which is really the southern margin of the deep channel. The water is here shallower (5-7 fms.) than in the Millbay Channel, the stones are chiefly the shales and grits of Drake's Island, instead of the honeycombed limestones found at Millbay, and they are generally covered with more or less mud. Red seaweeds grow on them in small quantities, and large Hydroids, especially *Nemertesia* (*Antennularia*) *antennina* and *Tubularia indivisa*, are often abundant. *Alcyonidium gelatinosum* is sometimes present in large quantities, as well as *Bowerbankia*. Sponges also are numerous, and large numbers of the smaller Polychaetes (*Phyllodoce maculata*, especially, may occur in great quantity) take refuge amongst the fixed organisms. *Calyptopora chinensis* is frequently found.

Queen's Ground. This term is used in the records to indicate the area extending from the Queen's Ground Buoy to the New Grounds Buoy and the ground around the latter. It is really the inner margin of the channel at the western entrance of the Sound. The depth is 5-6 fms. The soil is mainly a coarse shell gravel, amongst which are a number of shells and rather small flat stones. The ground is very clean, there being little mud covering the stones and shells, and the water is clearer and purer than the estuarine waters from the Hamoaze which run through Millbay Channel. The stones and shells afford attachment to occasional pieces of red seaweed (the rare *Stenogramma* may be especially noted) and to many of the larger Calyptoblastic Hydroids and branching Bryozoa (especially *Bowerbankia*). Lamellibranchs (especially *Spisula*) live amongst the shell gravel, whilst *Portunus depurator* is abundant on it. The Polychaete fauna differs considerably from that found on the edge of the Asia Shoal and in Millbay Channel.

Duke Rock. Depth 4-5 fms. The grounds around the Duke Rock form the western border of the channel at the eastern entrance of the Sound. In recent years the Admiralty have carried out extensive dredging operations

in this neighbourhood, and have to a large extent diminished its value as a dredging ground for scientific purposes. The stones and shells which are taken here carry a similar collection of animals to that found at Queen's Ground, but the shell gravel, with the animals which inhabit it on the latter ground, is replaced by finer muddy sand.

Trawling Grounds of the Sound. The fine sand and mud grounds of the centre of the Sound and of Jennycliff Bay are best worked with small trawls of either shrimp mesh or mosquito mesh. Shrimps, prawns, and small crustacea, small flat-fishes, pipe-fishes, *Heterosepiola atlantica*, and *Philine aperta*, are the characteristic species taken. The dog-whelk (*Nassarius reticulatus*) and shore crab (*Carcinus maenas*) are abundant species on these grounds, but are best taken in traps.

The Cattewater. The soil in the Cattewater (estuary of the Plym) below Turnchapel is all soft mud, which can be worked with a shrimp trawl. The characteristic local forms are almost exclusively shrimps, prawns (especially *Palaemonetes*), *Praunus flexuosus*, and *Carcinus maenas*. The Cattewater is chiefly useful, however, as a collecting ground, from the fact that the Plymouth trawlers often throw a good deal of their refuse overboard there, and many of the species from outside amongst this refuse are capable of surviving for a time.

THE YEALM ESTUARY.

In the Yealm Estuary is a large body of enclosed and sheltered water, with a fauna which is essentially marine for a considerable distance above the mouth. The mouth is almost closed by a bar of sand, a deep channel being left only on the southern side. At a distance of about a mile from the mouth, the estuary divides into two branches, the Yealm River proper and Newton Creek. The Yealm possesses a number of rich collecting grounds, which would well repay a more careful and detailed study than they have yet received.

Shores.

Yealm Sand-bank. The name has been used in the records to indicate a bank of fine to medium sand on the left bank of the Yealm River above the junction with Newton Creek, which is uncovered at low spring tides. The fauna is characterised by the presence in the sand of large numbers of *Ensis ensis*. By digging may also be obtained in more or less considerable numbers *Leptosynapta inhaerens*, *Paphia* (*Tapes*) *pullastra* and *Paphia* (*Ruditapes*) *decussata*, *Spisula solida*, *Gari depressa*, *Sigalion boa*, *Amphitrite gracilis*, and large specimens of *Nephtys caeca*. On the surface of the bank are found *Calliostoma zizyphinus*, and, during the summer months, *Aplysia punctata*, both in considerable quantities.

Eastern Shore below junction of Yealm River and Newton Creek. Along this shore the soil is composed of a coarse, muddy gravel, the most striking feature of the fauna of which is the abundance of the large Terebellid *Amphitrite johnstoni*, with its commensal Polynoid, *Gattyana cirrosa*. *Scalibregma inflatum* is also found here.

Zostera Bed near the Mouth of the Yealm. Along the southern shore a *Zostera* bed is just exposed close to the mouth of the estuary. The muddy sand in which the *Zostera* is rooted contains an abundant Polychaete fauna, of

which the two most numerous species are *Aonides oxycephala* and *Marphysa belli*, whilst *Notomastus rubicundus* and *N. latericeus* are also found.

Dredging and Trawling Grounds.

The channel of the river just below the junction of the Yealm and Newton Creek is the best dredging ground in the estuary. The bottom is covered with stones and shells (chiefly oyster-shells), to which red and brown seaweeds are attached in considerable quantities. *Psammechinus miliaris* is often abundant, and both *Asterias rubens* and *Marthasterias glacialis* are generally taken as well as *Ophiothrix fragilis*. In addition to the ordinary shallow-water crabs, *Pilumnus hirtellus*, *Portunus arcuatus*, *Macropodia rostratus*, *Inachus dorynchus*, and *Hyas araneus* are usually found. Large specimens of *Archidoris britannica* are met with, and *Acmaea virginea*, *Calyptraea chinensis*, and *Acanthochiton crinitus*, each in considerable numbers, are characteristic. Of Hydroids, large colonies of *Plumularia pinnata* are the most abundant, whilst *Hydractinia echinata* is plentiful on shells inhabited by *Eupagurus bernhardus*. Large specimens of *Phallusia mamillata* are frequent, as well as specimens of *Asciidiella aspersa*. *Polycirrus caliadrum* is very plentiful, whilst numbers of Phyllodocids and Syllids, as well as other small Polychaetes, hide amongst the stones and shells. *Eurylepta cornuta*, *Lineus marinus*, and *Prostheceraeus vittatus* are also generally to be found.

In the Yealm River itself, above the junction with Newton Creek, there is a large oyster bed.

Zostera Bed along the Southern Shore. A *Zostera* bed lies close to the southern shore at the mouth of the harbour, which can be most usefully worked with a shrimp trawl. Its fauna resembles that of the *Zostera* bed in Cawsand Bay, to be mentioned later. In addition to pipe-fishes, wrasse, and other small fishes, *Praunus flexuosus* is abundant, as well as *Hippolyte varians*, *Cantharus (Jujubinus) striatus*, *Lacuna vineta*, and *Halicystus auricula*, whilst small *Anemonia sulcata* are abundant attached to the *Zostera*.

OUTSIDE GROUNDS.

Shores.

Wembury Bay. The shores of this bay form one of the best collecting grounds on the open coast in the neighbourhood of Plymouth. A reef of high rocks (Church Reef and Blackstone Rocks) runs seawards in a south-westerly direction from in front of Wembury Church, forming deep overhanging ledges on the landward side, and leaving at low water many tide-pools both large and small. To the westward of this reef the shore is formed of stretches of low, weed-covered rocks alternating with patches of gravel and sand of different textures. The whole shore is exposed to almost the full force of the channel waves, and the greater part of the fauna is found beneath the overhanging ledges and in other sheltered situations amongst the rocks and seaweeds. The fauna of the sand and gravel is not very extensive.

The general character of the fauna of the rock ledges and of the rock pools is similar to that found in corresponding situations within the Sound (e.g. Rum Bay, Drake's Island), but there is greater profusion both of individuals and of species. The same shore Gastropoda are found in their respective tidal zones, and the ledges of rocks and under sides of stones are covered with

the same species of sponges, ascidians, bryozoa, anemones and hydroids. Of Echinoderms the representative species, as on the shores of the Sound, are *Amphipholis squamata*, *Ophiothrix fragilis*, *Psammechinus miliaris*, and *Cucumaria saxicola*, all of which are found under stones, the two latter only at extreme low water.

Reny Rocks. A reef of exposed, weed-covered low rocks running from the Shagstone to the mainland. The fauna resembles that of the rocks in Wembury Bay.

Whitsand Bay. An exposed shore which consists chiefly of fine shifting sand of a not very productive character. At intervals small reefs of low rocks run out amongst the sand, which form the home of a few ordinary rock-haunting species, and are specially characterised in places by the great abundance of the reef-building polychaete, *Sabellaria alveolata*. The rocky foundation in close proximity to an abundant supply of sand evidently furnishes to these worms the special conditions necessary for the formation of their masses of sand-built tubes.

Dredging and Trawling Grounds.

Cawsand Bay. Depth 3-5 fms. A characteristic inshore shallow bay with a bottom of fine sand. Being sheltered from the south-west, it is protected from the most violent and frequent gales, which in this district come from that direction, and is only visited by heavy seas during gales from the east. In the shallowest parts of the bay is an extensive bed of *Zostera*, with a characteristic fauna, this being one of the chief features which distinguishes the trawling grounds of Cawsand Bay, from those of the more exposed Whitsand Bay, to be presently mentioned.

The smaller Crustacea (*Hippolyte varians*, *Praunus flexuosus*, Cumacea, etc.) are abundant, and specimens of *Maia squinado*, the common edible crab (*Cancer pagurus*), the shrimp (*Crangon vulgaris*), and the prawn (*Leander serratus*) are generally obtained. *Heterosepiola atlantica* is always present and often numerous, and in the summer months *Sepia officinalis* is often abundant. On the *Zostera*, small specimens of *Anemonia sulcata* are frequent, and Foraminifera, especially *Polystomella crispa* and *Discorbina rosacea*, are generally abundant. *Nassarius reticulatus* occurs in quantity, often covered with Hydroids. *Spisula elliptica* and *Ensis ensis* are common buried in the sand.

The most characteristic feature of the fauna of this bay is, however, the fishes. These consist of flat-fishes (Soles, Plaice, Dabs, etc.), Skates and Rays, and several species of pipe-fish.

Whitsand Bay. Depth 4-8 fms. Another example of a shallow sandy bay, but being open to the south and west, it is subject to much more disturbance from the waves than Cawsand Bay. There is here also a great variety of the smaller Crustacea and *Heterosepiola atlantica* is abundant. The lamellibranch molluscs, *Donax vittatus* and *Mactra corallina*, are plentiful in the clean, fine sand found in many parts of this bay. *Corystes cassivelaunus* and *Astropecten irregularis*, characteristic sand-dwelling species, are also often taken, though much less frequently than in deeper water.

Mewstone Ledge. Depth 10-15 fms. A ridge of soft, red conglomerate rock runs seawards in a southerly direction from the Mewstone. Over this ridge at a depth of 10 to 12 fms. it is possible to work a dredge, the dredge often

breaking away and bringing to the surface pieces of the rock of considerable size. The rock is free from the growth of any seaweeds, but is well covered with Hydroids, Bryozoa, and sponges. The following species are common and typical of the fauna associated with this red rock : *Cliona celata*, *Polymastia mamillaris*, *P. robusta*, and *Raspailia* spp. ; *Eunicella verrucosa* with *Gephyropsis dohrni* and *Duvaucella plebeia* living upon it ; *Alcyonium digitatum* with *Ovula patula* ; *Caryophyllia smithi* with its associated barnacle *Pyrgoma anglicum* ; *Nemertesia* (*Antennularia*) *antennina* and *A. ramosa* with *Scalpellum vulgare* ; small colonies of *Sertularella gayi* and *S. polyzonias* ; *Kirchelpaueria* (*Plumularia*) *pinnata* and *Plumularia catharina* ; *Lafoea dumosa* with occasional specimens of *Nematomenia banyulensis* attached ; *Cucumaria lactea* on the rock itself and on the attached Hydroids ; occasional specimens of *Ophiothrix fragilis*, *Henricia sanguinolenta* and of the large Holothurian, *Holothuria nigra* ; *Ophiopsila aranea* concealed in holes and crevices of the rock ; *Phallusia mamillata*, *Asciidiella scabra*, and *Ciona intestinalis* (small specimens) ; the Bryozoa *Crisia cornuta* and *Bugula flabellata* in abundance, *Alcyonidium gelatinosum*, *Bicellaria ciliata*, small colonies of *Cellaria fistulosa* and *C. sinuosa*, and occasional large masses of *Lepralia foliacea*, amongst which a number of small Crustacea, especially large numbers of *Porcellana longicornis*, are to be found. The large *Phyllodoce paretii* is also often found here. The red rock itself is bored by numbers of *Pholadidea loscombiana*.

Mewstone Shell Gravel. On either side of the Mewstone ledge, and probably in patches between the rocks and the ledge, the bottom soil is composed of a coarse shell gravel. In working a dredge over the ledge a mixed fauna, comprising the animals from the rocks and from the gravel, is generally obtained. The gravel itself may also be worked with a small trawl, the Agassiz trawl having been generally used in our work.

Species characteristic of this shell gravel are *Holothuria nigra* (often in considerable numbers), *Chione* (*Clausinella*) *fasciata*, *Paphia* (*Tapes*) *rhomboides*, *Laevicardium crassum*, *Spatangus purpureus*, *Glycimeris glycimeris*, *Lumbriconereis impatiens*, *Glycera gigantea*, *Thecocarpus* (*Aglaophenia*) *myriophyllum*, *Ebalia tuberosa* and *Eurynome aspera*.

Mewstone 'Amphioxus' Ground. Depth 10-12 fms. About 1½ miles to the southward of the Mewstone (off Yealm Head) is a patch of shell gravel of finer texture than that last described, which is one of the few localities in the Plymouth district where *Amphioxus lanceolatus* has been found in numbers. The fauna of this shell gravel is limited, but very characteristic. In addition to *Amphioxus*, the following are typical species : *Conilera cylindracea*, *Ampelisca spinipes*, *Anapagurus laevis* and *Eupagurus cuanensis*, inhabiting chiefly the shells of *Turritella communis* and *Aporrhais pes-pelecani*, associated with which *Epizoanthus incrustatus* is very frequent and the Hydroid *Merona cornucopiae* is often found, especially on the *Aporrhais* shells ; *Phascolion strombi*, not uncommon living in empty *Turritella* and *Dentalium* shells ; *Ebalia tumefacta* and *E. tuberosa*, *Glycera lapidum* and *Onuphis conchilega*. There is also a typical lamellibranch fauna similar to that of the Mewstone Echinoderm Ground, but including considerable numbers of *Tellina crassa*.

Mewstone 'Echinoderm' Ground. 2-4 miles south of Mewstone. Depth 23-24 fms. Some years ago this was one of the most profitable grounds in the neighbourhood on which to shoot a trawl when it was desired to obtain a good collection of invertebrates. It has since been almost entirely ruined owing to the amount of mud and refuse tipped upon it by barges from Plymouth

and Devonport. The bottom soil consists of a coarse muddy gravel. The trawl, after a successful haul, will contain a few *Echinus esculentus*; an occasional *Solaster papposus* and *Buccinum undatum*; *Portunus depurator*, *Eupagurus bernhardus* in *Buccinum* shells, some carrying *Calliactis parasitica*, others *Hydractinia echinata*; *Eupagurus prideauxi*, with *Adamsia palliata*; *Chlamys (Aequipecten) opercularis*, *Chlamys (Palliolium) tigrina* not uncommon, and an occasional specimen of *Pecten maximus*; *Galathea dispersa*, *Inachus dorsetensis*, *Macropodia longirostris*, *Ascidia scabra*, a few *Marthasterias glacialis* and *Asterias rubens*, and varying quantities of *Sertularella gayi*, *Cellaria sinuosa* and *C. fistulosa*, according to the exact position of the haul.

Inside the 'Echinoderm' ground, between that ground and Yealm Head, in rather shallower water, there is a stretch of coarse, muddy, gravel ground, which is covered almost exclusively with the brittle-star *Ophiothrix fragilis*. A dredge hauled on this ground comes up full of these Echinoderms, a few specimens of large *Ophiocomina nigra*, being mixed with them. On this ground and to the westward of it, *Pandalina brevirostris* is present in large numbers.

Fine Sand south of Mewstone. Depths 27-30 fms. From 5 to 7 miles south of the Mewstone is a frequently worked trawling ground with a bottom of fine, clean sand. The fauna here closely resembles that found on the Inner Eddystone Trawling Ground (cf. *Journ. Mar. Biol. Assoc.*, Vol. V, p. 389). Characteristic and typical species are: *Astropecten irregularis*, *Aphrodite aculeata*, *Corystes cassivelaunus*, *Ophiura texturata*, *Alcyonium digitatum* attached to shells, *Chlamys (Aequipecten) opercularis*, *Sertularella gayi* and *S. polyzonias*, *Theocarpus (Aglaophenia) myriophyllum*, *Cellaria sinuosa* and *C. fistulosa*, *Ascidia scabra*, and *Macropodia longirostris*.

Stoke Point Grounds. Western boundary, Blackstone Point; eastern boundary, Revelstoke Church Cove; seaward extension, about $1\frac{1}{2}$ miles. The ground shelves very regularly outside the 10 fm. line; inside this line it is very uneven; maximum depth, 22 fms.

In their general features these grounds present much similarity to the 'Mewstone grounds,' but they offer rather greater diversity of type within a given area; and perhaps partly as the result of this and also of the fact that they are exposed to the full sweep of the Channel tide, the fauna is considerably richer than it is on the Mewstone grounds.

The friable red rock characteristic of the Mewstone Ledge is met with again, and forms numerous more or less detached reefs, off Stoke Point. It is abundantly perforated by *Pholadidea*, and in the disused crypt of this mollusc, *Thalassema neptuni* and the remarkable Ophiurid *Ophiopsila aranea* are frequent. As at the Mewstone, the surface of the rock is very clean, and it affords attachment to *Eunicella*, *Antennularia*, *Aglaophenia*, *Alcyonium digitatum*, *Caryophyllia*, *Tethya*, *Alcyonidium*, etc.

Between the reefs of red rock are patches of very rich shell sand and gravel.

The grounds include an eastward extension of the Mewstone 'Echinoderm' ground, together with patches where *Ophiothrix* and *Ophiocomina* are abundant.

The Rame-Eddystone Grounds. This name has been used to indicate the grounds lying for 3 to 4 miles on either side of the line from Rame to Eddystone and at depths of from 25 to 30 fms. Two typical classes of grounds can be recognised in this area: (1) coarse grounds with a bottom soil of muddy gravel, on which a few *Chaetopterus* may sometimes be taken, and the chief Hydroids are *Halecium halecinum* and *H. beani*; and (2) fine grounds, with a

bottom soil of fine sand, characterised by a certain amount of *Cellaria sinuosa* and *C. fistulosa* and by the Hydroid *Sertularella gayi*. The grounds are very patchy, and the two typical faunas are much intermingled, so that it is only occasionally and after a short haul that a fair representation of either of the two types of fauna is obtained.

Both classes of ground can be profitably worked with both the dredge and trawl. On both, *Echinus esculentus* and *Chlamys (Aequipecten) opercularis* may be met with in particular spots, and *Marthasterias glacialis* and *Asterias rubens* are generally distributed over the area.

The following are typical species occurring on the two classes of grounds :—

COARSE GROUNDS. *Hyalinoecia tubicola*, *Halecium halecinum*, and *H. beani*, *Atelecyclus septemdentatus*, *Ophiura albida*, *Ophiactis balli*, *Chione (Clausinella) fasciata*, *Paphia (Tapes) rhomboides*, and *Ebalia tuberosa* and *E. tumefacta*.

FINE GROUNDS. *Cellaria sinuosa* and *C. fistulosa*, *Ophiura texturata*, *Sertularella gayi* and *S. polyzonias*, *Echinocardium cordatum*, *Corystes cassivelaninus*.

From the above description it will be seen that the fauna of the Rame-Eddystone grounds resembles very closely that of the grounds in the neighbourhood of the Eddystone, already described in the *Journal of the Marine Biological Association* (Vol. V, p. 365 *et seq.*).

The Rame Mud. Maximum depth 27 fms. For a distance of from 3 to 4 miles seawards from Rame Head the sea bottom consists of soft mud, and contains a very rich and characteristic fauna. Polychaetes are abundant, *Melinna palmata*, *Notomastus latericeus*, *Aricia curvieri*, *Glycera*, *Goniada*, and *Nephtys* being typical examples. *Cucumaria elongata*, *Gonoplax rhomboides*, and *Alpheus ruber* are very numerous. Other constantly occurring species are *Callinassa subterranea*, *Labidoplax digitata*, *Leptosynapta inhaerens*, *Psammosolen (Azor) chamasolen*, *Sagartia viduata*, and *Edwardsia callimorpha*.

The Looe-Eddystone Grounds. This name has been applied to an extension westwards of the Rame-Eddystone Grounds. Depths 25-30 fms. The fauna is of a similar general character to that of the latter grounds, but is particularly rich, as the result probably of the presence of much rough ground intermingled with trawling ground. It is noteworthy that this is the only ground in the Plymouth area where *Trigla lineata* is to be found.

Eddystone Shell-Gravel. Depth 25-32 fms. Extending from about $\frac{1}{4}$ mile to 2 miles North-West of the Eddystone Lighthouse is a patch of rough clean shell gravel where *Amphioxus lanceolatus* is present in large numbers, as many as 75 individuals being not an unusual number in one haul of the fine-meshed dredge. Other inhabitants of this shell gravel, constantly present, but in small numbers, are *Conilera cylindracea*, *Tellina crassa*, *Chione (Clausinella) fasciata*, and *Ebalia tuberosa*.

The Eddystone Grounds. For a detailed description of these grounds see *Journal of the Marine Biological Association* (Vol. V, p. 365).

LIST OF NAMES OF THOSE RESPONSIBLE FOR THE RECORDS.

The authorities for the various Records are indicated by their initials, of which the following is a complete list.

Members or late members of the Plymouth Laboratory Staff are marked with an asterisk.

- | | |
|---------------|--|
| A.B. | Miss A. Binder, Dresden. |
| A.B.H. | Miss A. B. Hastings, British Museum (Natural History), London. |
| A.D.H. | A. D. Hobson, M.A., Edinburgh University. Formerly Ray Lankester Investigator. |
| *A.E.H. | A. E. Hefford. Formerly Assistant Naturalist at the Plymouth Laboratory. |
| A.H. | Miss Alice Heath, Torquay. |
| *A.J.M.-J. | A. J. Mason-Jones. Formerly Assistant Naturalist at the Plymouth Laboratory. |
| *A.J.S. | A. J. Smith, Assistant at the Laboratory since 1895. |
| *A.M. | Mrs. D. J. Matthews. |
| A.Me. | Dr. Anton Meyer, Zoologisches Institut, Leipzig. |
| A.M.B. | Miss A. M. Bidder, Cambridge. |
| A.M.N. | The late the Rev. Canon A. M. Norman, LL.D., F.R.S. The records are mostly from Norman & Scott, Crustacea of Devon and Cornwall, 1906. |
| A.M.N. & T.S. | refers to records from Norman & Scott, Crustacea of Devon and Cornwall, 1906. |
| A.O.W. | The late A. O. Walker. |
| A.W.T. | Miss A. W. Thomson. |
| C.C.H. | C. C. Hentschel, Demonstrator in Biology at St. Bartholomew's Hospital Medical College, London. |
| C.C.N. | The late Professor C. C. Nutting, University of Iowa. |
| C.C.S. | C. C. Stockman, Junr., Boston, Mass. |
| C.E. | Sir Charles Eliot, G.C.M.G. Formerly British Ambassador to Japan. |
| *C.F.A.P. | C. F. A. Pantin, Trinity College, Cambridge, Physiologist at the Laboratory, 1922-29. |
| C.G.H. | The late C. Gordon Hewitt. |
| C.L.W. | C. L. Walton. Formerly Assistant Naturalist at the Lowestoft Laboratory. |
| *C.M.Y. | Dr. C. M. Yonge, Physiologist at the Plymouth Laboratory since 1930. |
| C.R.H. | Dr. C. R. Harington, University College, London. |
| C.S. | The late Professor Charles Stewart, F.R.S. |
| C.S.B. | The late C. Spence Bate, F.R.S., Plymouth. |

- D.A. Miss D. Atkins, London.
 *D.P.W. D. P. Wilson, Assistant Naturalist at the Laboratory since 1928.
 D.R. The late David Robertson, Millport.
- E.A.E. Edward A. Ellis, Oxford.
 E.A.M. The late Professor E. A. Minchin, M.A., Professor of Zoology, University College, London.
- E.B. Prof. Emile Brumpt, University of Paris.
 *E.F. E. Ford, Naturalist at the Plymouth Laboratory since 1913. Records are chiefly from papers in *Journ. Mar. Biol. Assoc.* (See literature list).
- E.G.G. The late Dr. E. G. Gardiner, Woods Holl, Mass.
 *E.J.A. Dr. E. J. Allen, F.R.S., Director of the Plymouth Laboratory since 1895.
- *E.J.B. The late E. J. Bles, Director of the Plymouth Laboratory, 1893-94.
- E.L.B. Professor E. L. Bouvier, Sorbonne, Paris.
 E.O.W. E. O. Waterhouse.
 E.P. Professor E. Percival, Professor of Zoology, Christchurch University, New Zealand.
- E.R.G. E. R. Gunther, Naturalist on the "Discovery" Expedition.
 E.R.S. E. R. Speyer, Oxford.
 E.S. Dr. E. Stechow, Munich.
 E.T.B. E. T. Browne, Berkhamsted.
- *E.W.L.H. The late E. W. L. Holt. Formerly Chief Inspector of Fisheries, Irish Fisheries Department.
 E.W.Mc.B. Prof. E. W. MacBride, F.R.S., Professor of Zoology, Imperial College of Science, S. Kensington.
- *E.W.N. The late E. W. Nelson. Formerly Naturalist at the Plymouth Laboratory and Scientific Superintendent of the Scottish Fishery Board.
- *E.W.S. Mrs. E. W. Sexton, Research Assistant at the Plymouth Laboratory. Formerly Ray Lankester Investigator.
- F.A.P. F. A. Potts, Trinity Hall, Cambridge.
 F.E.B. The late F. E. Beddard, F.R.S., Prosector of the Zoological Society, London.
- F.H.S. Capt. F. H. Stewart, London.
 F.J.B. The late Professor F. Jeffery Bell, M.A., of the British Museum (Natural History), London.
- *F.J.Br. The late F. J. Bridgman, Naturalist at the Plymouth Laboratory, 1910.
- *F.S.R. F. S. Russell, Naturalist at the Plymouth Laboratory since 1924.
 F.W.G. The late Professor F. W. Gamble, Professor of Zoology, Birmingham University.
- *G.A.S. G. A. Steven, Assistant Naturalist at the Plymouth Laboratory since 1929.
- G.B. Gregory Bateson, Cambridge.
 G.C.C. G. C. Champion.
- *G.C.B. Prof. G. C. Bourne, F.R.S., Oxford.
 *G.E.B. The late G. E. Bullen. Formerly Assistant Naturalist on the Staff of the Plymouth Laboratory.

- *G.E.W. Mrs. Wheeler (Miss G. E. Webb). Formerly Assistant Naturalist.
 G.H.F. Dr. G. H. Faulkner. Formerly of Bedford College, London.
 G.H.G. The late G. H. Grosvenor, Oxford, who conducted the Easter
 Class at the Plymouth Laboratory for many years.
 G.M. The late Colonel George Montagu, Kingsbridge.
 *G.M.S. G. M. Spooner, Plymouth, Student Probationer at the Plymouth
 Laboratory, 1929-31.
 G.P.B. Dr. G. P. Bidder, Cambridge.
 G.P.W. G. P. Wells, Zoology Department, University College, London.
 G.S.B. The late Dr. G. S. Brady, F.R.S.
 G.W. Miss G. Wijnhoff (now Mevrouw Dr. Stiasny), Leiden.
 G.W.S. The late Geoffrey W. Smith, Oxford.
 H.B. Dr. H. Bekker, Tartu.
 H.F. The Rev. H. Friend, Birmingham.
 H.G.C. Professor H. Graham Cannon, Professor of Zoology, Sheffield
 University.
 H.G.N. H. G. Newth, The University, Birmingham.
 H.N.R. Dr. H. N. Ray, Calcutta.
 H.M.W. Dr. H. M. Woodcock, Lister Institute, London.
 H.O. Dr. H. Ohshima, Japan.
 H.P.-G. Dr. Helen Pixell-Goodrich, Oxford.
 H.S. H. Stewart.
 I.G. Miss I. Gordon, D.Sc., British Museum (Natural History),
 London.
 I.I. Dr. I. Ikeda, Japan.
 J.C.S. J. C. Summer.
 J.C.Si. J. C. Simpson, Cambridge.
 J.F.G.W. J. F. G. Wheeler, Naturalist on the "Discovery" Expedition.
 J.G. James Gray, King's College, Cambridge.
 J.G.H. J. G. Hart.
 J.H.K. J. H. Keys, Plymouth.
 *J.H.O. Professor J. H. Orton, Professor of Zoology in the University
 of Liverpool. Formerly Chief Naturalist at the Plymouth
 Laboratory.
 J.J.L. The late J. J. Lister, M.A., F.R.S., Cambridge.
 J.J.W. J. J. Walker.
 J.O.-C. J. Omer-Cooper, Armstrong College, Newcastle-upon-Tyne.
 J.R.B. J. R. Baker, Oxford.
 *J.S.C. J. S. Colman, Student-Probationer at the Plymouth Labora-
 tory, 1929-30.
 J.S.D. The late Professor J. S. Dunkerly, Professor of Zoology in the
 University of Manchester.
 *J.T.C. J. T. Cunningham, M.A., London. Formerly Naturalist at the
 Plymouth Laboratory.
 J.W.Y. Colonel J. W. Yerbury.
 K.H.B. Dr. K. H. Barnard, South African Museum, Cape Town.
 *L.H.G. Dr. L. H. Gough. Formerly Assistant Naturalist at the Ply-
 mouth Laboratory.
 L.H.M. L. Harrison Matthews (*See* W. H. Leigh-Sharpe, 1926).
 *L.R.C. L. R. Crawshaw, M.A., Sponge Research Officer, British Hon-
 duras. Formerly Naturalist at the Plymouth Laboratory.

- M.B. M. Burton, British Museum (Natural History), London.
M.F.W. The late Martin F. Woodward, A.R.C.Sc.
M.G.L.P. M. G. L. Perkins.
M.H. Dr. M. Hasper, Marburg.
*M.V.L. Dr. M. V. Lebour, Naturalist at the Plymouth Laboratory
since 1915.
M.W.de L. M. W. de Laubenfels, University of California.
N.J. Dr. N. Joy, a Devon Entomologist.
N.J.B. Dr. N. J. Berrill, Assistant Professor of Zoology, Montreal,
Canada.
*O.D.H. O. D. Hunt. Formerly Assistant Naturalist at the Plymouth
Laboratory.
P.D. P. Debaisieux, Louvain.
P.T.C. The late Professor P. T. Cleve.
P.W. P. Worthington, Cambridge.
P.W.B.-S. The late Dr. P. W. Bassett-Smith, R.N. Records are from
Journ. Mar. Biol. Assoc., IV, p. 155, 1896.
*R.A.T. R. A. Todd, B.Sc., Inspector of Fisheries to the Ministry of
Agriculture and Fisheries. Formerly Assistant Naturalist at
the Plymouth Laboratory.
R.C.P. Professor R. C. Punnett, Cambridge.
R.E. Richard Elmhirst, Director of the Scottish Marine Biological
Station, Millport.
R.G. Dr. Robert Gurney, Oxford.
R.M.P. Mrs. S. Pace (Miss R. M. Clark).
*R.P. R. Palmer, B.Sc., Zoology Department, University College,
London. Formerly Student-Probationer at the Plymouth
Laboratory.
*R.S.C. Dr. R. S. Clark, Aberdeen, Naturalist to the Scottish Fishery
Board. Formerly Naturalist at the Plymouth Laboratory.
R.S.H. R. S. Handley.
*R.W. R. Winckworth, Royal Society, London. Formerly on the
Staff of the Plymouth Laboratory.
S.F.H. Sir Sidney F. Harmer, D.Sc., F.R.S. Formerly Director of
the British Museum (Natural History), London.
*S.M.N. S. M. Nunn, Laboratory Assistant at Plymouth.
*S.P. S. Pace. Formerly Naturalist at the Plymouth Laboratory
and Director of the Millport Marine Biological Station.
T.A.S. Prof. T. A. Stephenson, Cape Town, S. Africa.
T.H.R. T. H. Riches, Cambridge.
T.H.T. T. H. Taylor, Leeds.
T.M. Professor Th. Mortensen, University Museum, Copenhagen.
T.R.R.S. The late Rev. T. R. R. Stebbing, F.R.S.
T.S. The late Dr. T. Scott, Aberdeen.
T.T.B. T. T. Barnard, Cambridge.
*T.V.H. The late T. V. Hodgson, Curator of the Plymouth Museum and
formerly Director's Assistant at the Plymouth Laboratory,
1895-97.
*W.B. W. Bygrave. Formerly Assistant Naturalist at the Plymouth
Laboratory.

- W. De M. The late W. De Morgan, Plymouth.
W.E.C. Dr. W. E. Collinge, The Museum, York.
W.E.E. Dr. W. E. Evans, Botanical Gardens, Edinburgh.
W.F.R.W. The late Professor W. F. R. Weldon, F.R.S., Oxford.
*W.G. Professor W. Garstang, Professor of Zoology, Leeds University.
Formerly Naturalist at the Plymouth Laboratory and
Naturalist-in-charge of the Lowestoft Laboratory.
*W.H. The late Walter Heape, F.R.S., Superintendent of the Marine
Biological Association, 1886-88.
W.H.L.-S. W. Harold Leigh-Sharpe, St. Mary's Hospital, London.
W.H.P. W. H. Potts, Cambridge.
W.I.B. The late W. I. Beaumont.
W.M.T. Professor W. M. Tattersall, Professor of Zoology, Cardiff
University.
W.N. Dr. W. Nicoll, London.
W.O.R.K. The late W. O. Redman King, Leeds University.
W.P.M. W. P. Marshall.
*W.S. William Searle, Laboratory Fisherman.
W.W. W. Webster.
Y.O. Yô Okada, Kyoto Imperial University, Japan.

THE LIST OF SPECIES

Phylum **PROTOZOA**

Class **MASTIGOPHORA**

Sub-Class PHYTOMASTIGINA

Order CHRYSOMONADINA

Family **Silicoflagellidae**

DICTYOCHA FIBULA (Ehrenberg) [*Lemmermann*, 1908, p. 27]

Common inside and outside Sound, centrifuged, chiefly spring and summer. (M.V.L.)

DISTEPHANUS SPECULUM (Ehrenberg) [*Lemmermann*, 1908, p. 29]

Common all seasons except in mid-winter, inside and outside Sound, centrifuged, swarm spores July 1916, dividing August, 1920. (M.V.L.)

Family **Coccolithophoridae**

COCCOLITHOPHORA PELAGICA (Wallich) [*Lebour*, 1923, p. 271]

Common inside and outside Sound, from close to shore outwards, centrifuged, almost all seasons. (M.V.L.)

PONTOSPHAERA HUXLEYI (Lohmann) [1902, p. 130]

Fairly common both inside and outside Sound, centrifuged, nearly all seasons (M.V.L.) : frequent in culture during summer. (E.J.A.)

Order DINOFLAGELLATA

[In this Order reference should be made in the case of all species to Lebour, *The Dinoflagellates of Northern Seas*, 1925, b.]

Sub-Order *Adiniferidea*

Family **Prorocentridae**

EXUVIELLA MARINA Cienkowski

Common in tow-nettings, Sound, summer. (M.V.L.)

EXUVIELLA COMPRESSA (Bailey)

Once only from tow-netting in Sound, summer. (M.V.L.)

EXUVIELLA PERFORATA Gran

Common in Sound and outside, centrifuged, spring and summer. (M.V.L.)

EXUVIELLA APORA Schiller

Fairly common, Yealm Estuary and Sound, summer. (M.V.L.)

PROROCENTRUM MICANS Ehrenberg

Very common in estuaries and in Sound ; rarer outside but sometimes abundant in tow-nettings (M.V.L.) : a common food of the oyster at times. (J.H.O.)

Sub-Order *Diniferidea*

Family **Pronoctilucidae**

OXYRRHIS MARINA Dujardin

Very common in Plymouth waters, frequent in cultures all the year round. (M.V.L.)

Family **Gymnodiniidae**

AMPHIDINIUM SCISSOIDES Lebour

In tow-nettings off Eddystone, once only, Oct. 1923. (M.V.L.)

AMPHIDINIUM CRASSUM Lohmann

Common in tow-nettings and centrifuged, Sound and outside, spring and summer. (M.V.L.)

AMPHIDINIUM PHAEOCYSTICOLA Lebour

Fairly common in Sound in spring and summer, living in Phaeocystis. (M.V.L.)

AMPHIDINIUM PELAGICUM Lebour

Once only in Channel, 5 miles S.W. of Plymouth, June. (M.V.L.)

GYMNODINIUM LUNULA Schütt

Common in Sound and outside, summer. (M.V.L.)

GYMNODINIUM SIMPLEX (Lohmann)

In a culture of sea water from Sound, made by Dr. Allen, summer. (M.V.L.)

GYMNODINIUM MINOR Lebour

Sound, rare, summer. (M.V.L.)

GYMNODINIUM PYGMAEUM Lebour

Several specimens, once only May 1923, English Channel, half way between Plymouth and French coast. (M.V.L.)

GYMNODINIUM RUBROCINCTUM Lebour

A few specimens, once only, Plymouth Sound, June, 1923. (M.V.L.)

GYMNODINIUM FILUM Lebour

Sound, rare, summer. (M.V.L.)

GYMNODINIUM SPLENDENS Lebour

Fairly common in the estuaries and in Sound, spring and summer. (M.V.L.)

GYMNODINIUM CONICUM Kofoid and Swezy

Once only in Sound, June. (M.V.L.)

GYMNODINIUM LEBOURI Pavillard

One specimen only, Sound, July, 1915. (M.V.L.)

GYMNODINIUM MINUTUM Lebour

Abundant in Yealm estuary, summer. (M.V.L.)

GYMNODINIUM RHOMBOIDES Schütt

Sound, sometimes abundant, summer. (M.V.L.)

GYMNODINIUM HETEROSTRIATUM Kofoid and Swezy

Common in Sound, often coastal, spring and summer. (M.V.L.)

GYMNODINIUM HYALINUM Lebour

Sound, rare, summer. (M.V.L.)

GYMNODINIUM ACHROMATICUM Lebour

One specimen only, July, 1915, Sound. (M.V.L.)

GYMNODINIUM ABBREVIATUM Kofoid and Swezy

Mouth of English Channel, rare, summer. (M.V.L.)

GYRODINIUM FALCATUM Kofoid and Swezy

Between Eddystone and Breakwater, once only, Dec. 1921. (M.V.L.)

GYRODINIUM LINGULIFERA Lebour

Outside Sound in open water, rare, summer. (M.V.L.)

GYRODINIUM CALYPTOGLYPHE Lebour

Sound, fairly common in summer. (M.V.L.)

GYRODINIUM GLAUCUM (Lebour)

Sound and outside, common, spring and summer. (M.V.L.)

GYRODINIUM BEPO (Schütt)

Sound, not very common. (M.V.L.)

GYRODINIUM BRITANNIA Kofoid and Swezy

Sound and outside, rare, summer. (M.V.L.)

GYRODINIUM SPIRALE (Bergh)

Sound and outside, common, spring and summer. (M.V.L.)

GYRODINIUM OPIMUM (Schütt)

Sound, not very common, summer. (M.V.L.)

GYRODINIUM OBTUSUM (Schütt)

Sound, rare, summer. (M.V.L.)

GYRODINIUM PINGUE (Schütt)

Sound, rare, summer. (M.V.L.)

GYRODINIUM CRASSUM (Pouchet)

Sound, rare, summer. (M.V.L.)

GYRODINIUM COCHLEA Lebour

Sound, fairly frequent, summer. (M.V.L.)

COCHLODINIUM SCHUETTI Kofoid and Swezy

Sound, rare, summer. (M.V.L.)

COCHLODINIUM HELICOIDES Lebour

Sound, rare, summer. (M.V.L.)

COCHLODINIUM HELIX (Pouchet)

Sound, rare, summer. (M.V.L.)

COCHLODINIUM PUPA Lebour

Sound, one specimen only, July. (M.V.L.)

COCHLODINIUM VINCTUM Kofoid and Swezy

Outside Sound, fairly frequent in summer. (M.V.L.)

COCHLODINIUM ACHROMATICUM Lebour.

Outside Sound, rare, May. (M.V.L.)

COCHLODINIUM PULCHELLUM Lebour

Sound and outside, very rare, summer. (M.V.L.)

COCHLODINIUM BRANDTI Wulff

Outside Sound, rare, summer. (M.V.L.)

TORODINIUM ROBUSTUM Kofoid and Swezy

Sound, common, summer. (M.V.L.)

Family **Polykrikidae****POLYKRIKOS SCHWARZI** Bütschli

Fairly common in Sound, summer. (M.V.L.)

Family **Noctilucidae****NOCTILUCA SCINTILLANS** Macartney

Very abundant near Plymouth at times ; very erratic in its appearances, spring and summer. (M.V.L.)

Family **Pouchetiidae****PROTOPSIS SIMPLEX** Lebour

Sound, rare, summer. (M.V.L.)

NEMATODINIUM ARMATUM (Dogiel)

Sound and outside, fairly common, summer. (M.V.L.)

POUCHETIA FUSUS Schütt

Sound, rare, summer. (M.V.L.)

POUCHETIA POLYPHEMUS (Pouchet)

One specimen only, outside Sound, summer. (M.V.L.)

Family **Blastodiniidae** (Parasitic Forms)

BLASTODINIUM HYALINUM Chatton

Once only in *Pseudocalanus elongatus*, Jan. (M.V.L.)

Family **Dinophysidae**

PHALACROMA PULCHELLUM Lebour

Sound, fairly common in summer. (M.V.L.)

PHALACROMA ROTUNDATUM (Claparède and Lach.)

Common at Plymouth, spring, summer and autumn. (M.V.L.)

PHALACROMA IRREGULARE Lebour

Sound, rare, summer. (M.V.L.)

DINOPHYSIS ACUTA Ehrenberg

Fairly common outside Sound, summer and autumn. (M.V.L.)

DINOPHYSIS ACUMINATA Clap. and Lach.

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

DINOPHYSIS OVUM Schütt

Rare near Plymouth, summer. (M.V.L.)

DINOPHYSIS LENTICULA Pavillard

Sound, often close to the shore, fairly common, spring, summer and autumn. (M.V.L.)

DINOPHYSIS PUNCTATA Jörgensen

Common at Plymouth, spring, summer and autumn. (M.V.L.)

DINOPHYSIS CAUDATA Kent

Occasionally caught outside Plymouth Sound, summer. (M.V.L.)

DINOPHYSIS TRIPOS Gourret

Open sea, not far from Plymouth, frequent, summer. (M.V.L.)

DINOPHYSIS SCHUETTI Murray and Whitting

Once only outside Sound, summer, 1927. (M.V.L.)

Family **Glenodiniidae**

GLENODINIUM DANICUM Paulsen

Sound, rare, summer. (M.V.L.)

Family **Peridiniidae**

PROTOCERATIUM RETICULATUM (Clap. and Lach.)

Abundant at Plymouth, spring and summer. (M.V.L.)

GONIODOMA POLYEDRICUM (Pouchet)

Rare in English Channel near Plymouth, summer. (M.V.L.)

GONIAULAX SPINIFERA (Clap. and Lach.)

Common at Plymouth, spring, summer and autumn, the commonest *Goniaulax* in these regions. (M.V.L.)

GONIAULAX DIGITALE (Pouchet)

Outside Sound and in the Channel, rare, summer. (M.V.L.)

GONIAULAX UNICORNIS Lebour

Frequent in Sound, centrifuged, spring and summer. (M.V.L.)

GONIAULAX ORIENTALIS Lindemann

Sound and outside, common at times, summer. (M.V.L.)

GONIAULAX POLYGRAMMA Stein

Fairly common outside Sound, summer. (M.V.L.)

GONIAULAX SCRIPPSAE Kofoid

Rare in Sound, summer. (M.V.L.)

GONIAULAX DIEGENSIS Kofoid

Rare in Sound, summer. (M.V.L.)

GONIAULAX TAMARENSIS Lebour

In the Tamar estuary, common at times, spring and summer. (M.V.L.)

GONIAULAX TRIACANTHA Jörgensen

Sound and in Yealm estuary, rare, summer. (M.V.L.)

GONIAULAX POLYEDRA Stein

Sound, fairly common, spring and summer. (M.V.L.)

GONIAULAX LONGISPINA Lebour

Sound, many specimens on one occasion, July. (M.V.L.)

DIPLOPSALIS LENTICULA Bergh

Fairly common in Sound, spring and summer. (M.V.L.)

PERIDINIOPSIS ROTUNDA Lebour

Common in Sound, centrifuged, spring and summer. (M.V.L.)

PERIDINIOPSIS ASYMMETRICA Mangin

Sound and outside, abundant, spring and summer. (M.V.L.)

DIPLOPELTOPSIS MINOR Lebour

Sound and estuaries, abundant, spring and summer. (M.V.L.)

DIPLOPSALOPSIS ORBICULARIS (Paulsen)

Rare in sound, summer. (M.V.L.)

KRYPTOPERIDINIUM FOLIACEUM (Stein)

Abundant at times in swarms, in the Yealm Estuary, spring and summer. (J.H.O.) (M.V.L.)

PERIDINIUM MONOSPINUM Paulsen

Common at Plymouth, summer. (M.V.L.)

PERIDINIUM AVELLANA Meunier

Fairly common at times from Sound and outside, summer. (M.V.L.)

PERIDINIUM THORIANUM Paulsen

Outside Sound, rare, summer. (M.V.L.)

PERIDINIUM EXCENTRICUM Paulsen

Outside Sound, rare, summer. (M.V.L.)

PERIDINIUM TRIQUETA (Stein)

Sound and estuaries, common, spring and summer. (M.V.L.)

PERIDINIUM CONICUM (Gran)

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM PENTAGONUM Gran

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM CONICOIDES Paulsen

Plymouth Sound, not very common, spring and summer. (M.V.L.)

PERIDINIUM LEONIS Pavillard

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM WILLEI Huitfeld-Kaas

Empty theca only, once in the Sound, summer. (M.V.L.)

PERIDINIUM FAERÖENSE Paulsen

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM TROCHOIDEUM (Stein) Lemm.

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM ACHROMATICUM Levander

Common in Sound, spring and summer. (M.V.L.)

PERIDINIUM SUBINERME Paulsen

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM DEPRESSUM Bailey

Very common at Plymouth, spring, summer and autumn. (M.V.L.)

PERIDINIUM OCEANICUM Vanhöffen

Not very common in open water outside Sound, summer. (M.V.L.)

PERIDINIUM OBLONGUM (Aurivillius)

Not common, inside and outside Sound, summer. (M.V.L.)

PERIDINIUM OBTUSUM Karsten

Not very common, inside and outside Sound, summer. (M.V.L.)

PERIDINIUM CLAUDICANS Paulsen

Fairly common, inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM GRANI Ostenfeld

Not very common, inside and outside Sound, spring and summer.
(M.V.L.)

PERIDINIUM MITE Pavillard

Sound, rare, summer. (M.V.L.)

PERIDINIUM STEINI Jörgensen

Not very common, inside and outside Sound, spring, summer and autumn. (M.V.L.)

PERIDINIUM OVATUM (Pouchet)

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM DIVERGENS Ehrenberg

Common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM GLOBULUS Stein

Rare, single specimen from Sound, summer. (M.V.L.)

PERIDINIUM CERASUS Paulsen

Very common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM BREVIPES Paulsen

Very common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM SUB-CURVIPES Lebour

Not very common, outside Sound, summer. (M.V.L.)

PERIDINIUM PALLIDUM Ostenfeld

Very common, inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM PELLUCIDUM (Bergh) Schütt

Very common inside and outside Sound, spring, summer and autumn.
(M.V.L.)

PERIDINIUM CURVIPES Ostenfeld

Not very common, inside and outside Sound. (M.V.L.)

PERIDINIUM DIABOLUS Cleve

Sound, rare, summer. (M.V.L.)

MINUSCULA BIPES (Paulsen)

Common, inside and outside Sound, spring and summer. (M.V.L.)

PYROPHACUS HOROLOGICUM Stein

Common outside Sound, spring, summer and autumn. (M.V.L.)

CERATIUM FURCA (Ehrenberg)

Common, spring, summer and occasionally in autumn. (M.V.L.)

CERATIUM MINUTUM Jörgensen

Sometimes in numbers outside Sound, summer. (M.V.L.)

CERATIUM FUSUS (Ehrenberg)

Very common, inside and outside Sound, spring, summer and autumn. (M.V.L.)

CERATIUM TRIPOS O. F. Müller

Very common inside and outside the Sound, commonest in summer and autumn, chiefly var. *atlantica*. (M.V.L.)

CERATIUM LAMELLICORNE Kofoid

Rare, outside Sound, summer. (M.V.L.)

CERATIUM MACROCEROS (Ehrenberg)

Common outside Sound, summer and autumn. (M.V.L.)

CERATIUM HORRIDUM Gran

Common outside Sound, summer and autumn. (M.V.L.)

CERATIUM LONGIPES (Bailey)

Rare, outside Sound, summer and autumn. (M.V.L.)

CERATIUM ARCTICUM (Ehrenberg)

Occasionally outside Sound, summer. (M.V.L.)

CERATIUM RETICULATUM (Pouchet)

Outside Sound, rare, summer. (M.V.L.)

Sub-Class ZOOMASTIGINA

Order PROTOMONADINA

Family **Herpetomonadidae**

TRYPANOSOMA CALLIONYMI Brumpt and Lebailly [1904, p. 613]

In *Callionymus lyra*, May 1911, Plymouth (H.H.)

Family **Oraspedomonadidae**

SALPINGOECA CONVALLARIA Stein [*Saville Kent*, 1880-82, 1, p. 357]

Tank in Plymouth Laboratory on *Vaucheria* and on chain diatoms from rock pools, not plentiful, Aug., 1909 (J.S.D.)

SALPINGOECA VAGINICOLA Stein [*Francé*, 1897, p. 235]

Tank in Plymouth Laboratory, on *Vaucheria*, very common, Aug., 1909 (J.S.D.)

SALPINGOECA AMPULLA Saville Kent [1880-82, I, p. 349]

Tank in Plymouth Laboratory, on *Vaucheria*, not common; "Young form" of Saville Kent seen Aug., 1909 (J.S.D.)

SALPINGOECA URCEOLATA Saville Kent [1880-82, I, p. 353]

Tank in Plymouth Laboratory (J.S.D.)

SALPINGOECA NAPIFORMIS Saville Kent [1880-82, I, p. 355]

Rock pool below Laboratory, on diatoms at base of *Fucus*, Aug., 1909, not common (J.S.D.)

POLYCOECA DUMOSA Dunkerly [1910, p. 189]

Tank in Plymouth Laboratory, Aug., 1909 (J.S.D.)

Family **Amphimonadidae****AMPHIMONAS GLOBOSA** Saville Kent [1880-82, I, p. 281]

In a culture of a green Alga from pipes of Aquarium fish tank, common, Aug., 1909 (J.S.D.)

Class **RHIZOPODA**

Order AMOEBINA

RHABDAMOEBA MARINA Dunkerly [1921 a, p. 220]

In a culture of *Oxyrrhis marina* in sea water with Allen and Nelson medium, Plymouth 1920 (J.S.D.)

Order FORAMINIFERA

The subjoined list of species is based upon the records in two papers which have already been published on the Foraminifera of the Plymouth District.

1. E. Heron-Allen and A. Earland. "The Foraminifera of the Plymouth District." *Journ. Roy. Micr. Soc.*, Series III, Vol. L, Part I, March, 1930, pp. 46-84, and Part II, July, 1930, pp. 161-199.

2. R. H. Worth in the 1904 edition of the Plymouth Fauna List. *Journ. Mar. Biol. Assoc.*, Vol. VII, 1904, p. 155.

AN ASTERISK IN FRONT OF A NAME INDICATES THAT THE SPECIES WAS RECORDED BY BOTH AUTHORITIES, WHILE THE USE OF ITALICS SIGNIFIES THAT THE SPECIES WAS RECORDED BY WORTH, BUT NOT BY HERON-ALLEN AND EARLAND.

Full details of the localities worked will be found in the respective papers, which also contain diagnoses of new species and some *nomina nova*.

The Stations entered in the present list refer to Heron-Allen and Earland's records, the material having been obtained as follows:—

- Station 1. (Label) "D netting. Inside Drake Island 5 April 1929."
- Station 2. (Label) Dredging. "Eddystone bearing W. by N. $2\frac{1}{2}$ miles. About 30 fms. 10 April 1929."
- Station 3. Shore gathering. (Dr. N. B. Eales) Rum Bay, 9 April 1929.
- Station 4. Dredging. (Label) "Eddystone bearing E.S.E. $1\frac{1}{2}$ miles. Fine-mesh dredge. About 30-31 $\frac{1}{2}$ fms. 9 April 1929."
- Station 5. Shore gathering. (H.-A. & E.) Wembury Beach. 10 April 1929.
- Station 6. Dredging. Cawsand Bay. 3-5 fms. Sent to them in London by Dr. Marie V. Lebour, March 1929.
- Station 7. Shore gathering. (Dr. J. H. Orton) Whitsand Bay. Made for them in October 1914 for the materials for their Monograph of the British Recent Foraminifera (B.R.F. Stn. 73).
- Station 8. A small quantity of mounted material, found by them among the material left by J. J. Lister.

The List cannot be regarded as final. There are still many species which a collector may reasonably expect.

Family **Gromiidae**

GROMIA OVIFORMIS Dujardin

Stns. 3, 5. See also Jepps, *Quart. Journ. Micr. Sci.*, Vol. 70, 1926, p. 701.

Family **Miliolidae**

Sub-Family *Nubecularinae*

NUBECULARIA LUCIFUGA Defrance

Stn. 2.

Sub-Family *Miliolininae*

*BILOCULINA DEPRESSA d'Orbigny

Stns. 2, 4, 5, 7, 8.

*BILOCULINA ELONGATA d'Orb.

Stns. 2, 4, 6.

BILOCULINA ELONGATA var. QUADRATA, H.-A. & E.

Stn. 2.

BILOCULINA GLOBULUS Bornemann

Stn. 8.

Biloculina ringens (Lam.)

Biloculina ringens var. *patagonica* d'Orb.

Biloculina tubulosa Costa

*SPIROLOCULINA ACUTIMARGO Brady

Stns. 2, 4.

SPIROLOCULINA CANALICULATA d' Orb.

Stns. 1, 4, 5.

SPIROLOCULINA DORSATA Reuss

Stns. 2, 5.

*SPIROLOCULINA EXCAVATA d' Orb.

Stns. 2, 4, 5, 7, 8.

Spiroloculina fragilissima Brady

*SPIROLOCULINA LIMBATA d' Orb.

Stns. 2, 4.

*SPIROLOCULINA PLANULATA (Lam.)

Stns. 2, 4, 5.

Spiroloculina tenuiseptata Brady*Miliolina agglutinans* (d' Orb.)

MILIOLINA ANGUINA (Terq.)

Stn. 6.

MILIOLINA ANGULATA Williamson

Stns. 2, 4, 5, 6, 7.

(*MILIOLINA AUBERIANA (d' Orb.) see *M. lamarckiana*)

MILIOLINA BADENENSIS (d' Orb.)

Stn. 7.

*MILIOLINA BICORNIS (Walker & Jacob)

Stns. 1, 2, 4, 5, 7, 8.

Miliolina bicornis var. *elegans* Will.

MILIOLINA BOSCIANA (d' Orb.)

Stns. 1-8.

*MILIOLINA BOUEANA (d' Orb.)

Stns. 1, 2, 4, 5.

MILIOLINA BROGNIARTII (d' Orb.)

Stns. 2, 4, 5, 6, 7.

MILIOLINA CANDEIANA (d' Orb.)

Stn. 4.

*MILIOLINA CIRCULARIS (Born)

Stns. 1, 2, 3, 4, 6, 7, 8.

MILIOLINA CLIARENSIS H.-A. & E.

Stn. 7.

MILIOLINA CONTORTA (d' Orb.)

Stns. 1-7.

MILIOLINA DILATATA (d' Orb.)

Stns. 2, 5, 6.

MILIOLINA DISPARILIS (d' Orb.)

Stn. 1.

MILIOLINA DUNKERQUIANA H.-A. & E.

Stns. 2, 3, 4.

MILIOLINA FUSCA (Br.)

Stn. 3.

MILIOLINA LABIOSA (d' Orb.)

Stns. 2, 8.

**MILIOLINA* (ADELOSINA) *LAEVIGATA* (d' Orb.)

Stns. 1, 5.

**MILIOLINA LAMARCKIANA* (d' Orb.), formerly *M. auberiana*

Stns. 1, 3, 5-8.

**MILIOLINA NITIDA* (d' Orb.)

Stn. 8.

**MILIOLINA OBLONGA* (Montagu)

Stns. 1-8.

MILIOLINA OBLONGA var. *LATA* (Terquem.)

Stns. 1, 2, 4-8.

MILIOLINA PULCHELLA (d' Orb.)

Stns. 1-4.

MILIOLINA PYGMAEA (Reuss)

Stns. 1, 2, 6, 7.

MILIOLINA SCHLUMBERGERI H.-A. & E.

Stns. 2-7.

MILIOLINA SCLEROTICA (Karrer)

Stns. 1, 4, 5, 6, 7, 8.

MILIOLINA SEMINUDA (Reuss.)

Stns. 2, 4, 5, 6, 7, 8.

**MILIOLINA SEMINULUM* (Linn.)

Stns. 1-8.

**MILIOLINA SUBROTUNDA* (Mont.)

Stns. 1-8.

**MILIOLINA DILATATA* (d' Orb.)

Stns. 2, 5, 6.

MILIOLINA TRICARINATA (d' Orb.)

Stns. 2, 5, 6, 7, 8.

***MILIOLINA TRIGONULA** (Lam.)

Stns. 1, 3, 5.

MILIOLINA UNDULATA (d' Orb.)

Stns. 2, 4, 5.

MILIOLINA VALVULARIS (Reuss)

Stns. 4, 7.

MILIOLINA VULGARIS (d' Orb.)

Stns. 1, 3, 5.

***MASSILINA SECANS** (d' Orb.)

Stns. 1, 3, 5, 6, 7, 8.

MASSILINA SECANS var. **DENTICULATA** Costa

Stns. 1, 5.

MASSILINA SECANS var. **TENUISTRIATA**, Earland

Stns. 2, 3.

Sub-Family *Hauerininæ***PLANISPIRINA CLIARENSIS** H.-A. & E. Stn. 7.**CORNUSPIRA DIFFUSA** H.-A. & E. Stn. 6.*Cornuspira foliacea* (Philippi)***CORNUSPIRA INVOLVENS** (Reuss.)

Stns. 1, 2, 4, 5, 6, 7.

CORNUSPIRA SELSEYENSIS H.-A. & E.

Stns. 2, 4, 5, 6, 7.

OPHTHALMIDIUM CARINATUM Balkwill and Wright

Stn. 2.

Family **Astrorhizidae**Sub-Family *Astrorhizinae***IRIDIA DIAPHANA** H.-A. & E.

Stns. 4 & 5.

Sub-Family *Pilulininae***BATHYSIPHON ARGENTEUS** H.-A. & E. Stn. 4.Sub-Family *Saccammininae***PSAMMOSPHAERA FUSCA** Schulze

Stns. 1, 2.

WEBBINELLA HEMISPHAERICA (J., P. & B.) Stns. 2, 4.Sub-Family *Rhabdammininae***JACULELLA ACUTA** Brady Stn. 2.**HYPERAMMINA ELONGATA** Brady Stn. 2.

TOLYPAMMINA VAGANS Brady

Stn. 2.

Haliphysema tumanowiczii Bowerbank

Family **Lituolidae**

Sub-Family *Lituolinae*

REOPHAX DIFFLUGIFORMIS Brady

Stn. 2.

REOPHAX FUSIFORMIS (Will.)

Stns. 2, 4.

REOPHAX MONILIFORME Siddall.

Stns. 1, 2, 4, 5.

REOPHAX NODULOSA Brady

Stn. 2.

REOPHAX SCORPIURUS Montfort

Stn. 2.

REOPHAX SCOTTII Chaster

Stns. 1, 6.

***HAPLOPHRAGMIUM CANARIENSE** (d' Orb.)

Stns. 1, 2, 4, 5, 6, 7, 8.

HAPLOPHRAGMIUM CANARIENSE var. **VARIABILIS** H.-A. & E.

Stn. 2.

Haplophragmium fontinense (Terq.)

***HAPLOPHRAGMIUM GLOBIGERINIFORME** (Parker & Jones)

Stns. 2, 4.

HAPLOPHRAGMIUM PSEUDOSPIRALE (Will.)

Stns. 4, 5.

HAPLOPHRAGMIUM RUNIANUM H.-A. & E.

Stn. 6.

CRITHIONINA MAMILLA Goës

Stn. 1.

Sub-Family *Trochammininae*

PLACOPSILINA CENOMANA d' Orb.

Stn. 1.

HIPPOCREPINA PUSILLA H.-A. & E.

Stn. 2.

***AMMODISCUS GORDIALIS** (Jones & Parker)

Stns. 1, 2, 5.

***AMMODISCUS INCERTUS** (d' Orb.)

Stn. 2.

AMMODISCUS CHAROIDES (Jones & Parker)

Stn. 2.

*TROCHAMMINA INFLATA (Mont.)

Stn. 2.

TROCHAMMINA INFLATA var. MACRESCENS Brady

Stn. 7.

*TROCHAMMINA OCHRACEA (Will.)

Stns. 1, 2, 4, 5, 6, 7.

TROCHAMMINA PLICATA (Terq.)

Stns. 2, 4.

TROCHAMMINA ROTALIFORMIS J. Wright

Stns. 2 & 4.

TROCHAMMINA SQUAMATA Jones & Parker

Stns. 2, 4, 6, 7.

Family **Textulariidae**Sub-Family *Textulariinae*

*TEXTULARIA AGGLUTINANS d' Orb.

Stn. 2.

Textularia agglutinans var. *porrecta* Brady

TEXTULARIA CONICA d' Orb.

Stns. 1-8.

*TEXTULARIA GRAMEN d' Orb.

Stns. 1, 2, 3, 4, 5.

*TEXTULARIA SAGITTULA Defr.

Stns. 1, 2, 4.

*TEXTULARIA TROCHUS d' Orb.

Stn. 2.

TEXTULARIA TURRIS d' Orb.

Stn. 4.

*VERNEUILINA POLYSTROPHA (Reuss.)

Stns. 1-8.

VERNEUILINA PUSILLA Goës

Stn. 4.

*(SPIROPLECTA WRIGHTII Silvestri, see *Textularia sagittula*).

GAUDRYINA FILIFORMIS Berthelin

Stns. 1, 2, 4, 6, 7.

GAUDRYINA RUDIS Wright

Stn. 2.

VALVULINA FUSCA (Will.)

Stn. 2.

CLAVULINA OBSCURA Chaster

Stns. 1, 2, 4, 6, 7.

Sub-Family *Bulimininae*

*BULIMINA ACULEATA d' Orb.

Stn. 4.

BULIMINA AFFINIS d' Orb.

Stn. 4.

*BULIMINA ELEGANS d' Orb.

Stns. 1, 2, 4, 5, 6, 7, 8.

Bulimina elegans var. *exilis* Br.

*BULIMINA ELEGANTISSIMA d' Orb.

Stns. 1, 4, 6.

BULIMINA ELONGATA d' Orb.

Stns. 1, 2, 4, 5, 6, 8.

BULIMINA FUSIFORMIS Will.

Stns. 1-6.

*BULIMINA MARGINATA d' Orb.

Stns. 1, 2, 4, 5, 6, 7, 8.

BULIMINA MINUTISSIMA Wright

Stn. 2.

BULIMINA OVATA d' Orb.

Stn. 4.

*BULIMINA PUPOIDES d' Orb.

Stns. 2, 4, 5, 6, 7.

BULIMINA SQUAMMIGERA d' Orb.

Stns. 1, 2, 6, 7.

*VIRGULINA SCHREIBERSIANA Czjzek

Stns. 1, 2, 4, 5.

VIRGULINA SUBSQUAMOSA Egger

Stns. 4, 8.

BIFARINA PORRECTA (Brady) var. ARENACEA H.-A. & E.

Stn. 2.

***BOLIVINA AENARIENSIS (Costa)**

Stn. 2.

BOLIVINA BEYRICHI Reuss.

Stns. 4-6.

***BOLIVINA DIFFORMIS (Will.)**

Stns. 2, 4.

***BOLIVINA DILATATA Reuss.**

Stns. 1-7.

BOLIVINA INFLATA H.-A. & E.

Stns. 2, 3, 4, 6, 7.

BOLIVINA LAEVIGATA (Will.)

Stns. 1, 2, 4, 6, 7.

BOLIVINA NOBILIS Hantken

Stns. 2, 4, 6, 7.

BOLIVINA PSEUDO-PLICATA H.-A. & E.

Stns. 1, 2, 4, 5, 6, 7, 8.

***BOLIVINA PUNCTATA d' Orb.**

Stns. 1, 2, 4, 5, 6, 7, 8.

BOLIVINA ROBUSTA Br.

Stns. 1, 2, 4, 5.

***BOLIVINA TEXTILARIOIDES Reuss.**

Stns. 1, 2, 5.

BOLIVINA VARIABILIS (Will.)

Stns. 1, 2, 4, 5, 6, 7.

Cassidulina bradyi Norman***CASSIDULINA CRASSA d' Orb.**

Stns. 2, 4, 5, 6, 7.

CASSIDULINA LAEVIGATA d' Orb.

Stns. 2, 7.

CASSIDULINA NITIDULA (Chaster)

Stns. 2, 6.

CASSIDULINA PULCHELLA d' Orb.

Stn. 6.

CASSIDULINA SUB-GLOBOSA Brady

Stns. 1, 2, 6, 7.

Family **Lagenidae**
Sub-Family *Lageninae*

LAGENA ACUTA (Reuss.)

Stns. 4, 6.

LAGENA ANNECTENS Burrows & Holland

Stns. 2, 4.

*LAGENA APICULATA (Reuss.)

Stns. 2, 4, 7.

Lagena aspera Reuss.

LAGENA BICARINATA (Terq.)

Stns. 2, 5, 6.

Lagena botelliformis Br.

LAGENA CATENULATA Reuss

Stn. 6.

*LAGENA CLAVATA (d' Orb.)

Stns. 2, 4, 6, 8.

LAGENA COSTATA (Will.)

Stns. 2, 6.

LAGENA CRENATA Parker & Jones

Stn. 4.

Lagena distoma, Parker & Jones

LAGENA FALCATA Chaster

Stn. 2.

*LAGENA GLOBOSA (Mont.)

Stns. 1, 2, 4, 5, 6, 7, 8.

*LAGENA GRACILIS Will.

Stn. 4.

*LAGENA GRACILLIMA (Seguenza)

Stns. 2, 4, 6

*LAGENA HEXAGONA (Will.)

Stns. 2, 3, 4, 6, 7, 8.

Lagena hispida Reuss.

LAGENA LAEVIGATA (Reuss.)

Stns. 1, 2, 4, 5, 6, 7, 8.

*LAGENA LAEVIS (Mont.)

Stns. 2, 4, 5, 6, 8.

*LAGENA LAGENOIDES (Will.)

Stns. 2, 4.

*LAGENA lineata (Will.)

Stns. 1, 2, 4, 7, 8.

LAGENA LUCIDA (Will.)

Stns. 1, 2, 4, 5, 6, 7, 8.

LAGENA LYELLII (Seg.)

Stns. 1, 4.

LAGENA MALCOMSONII J. Wright

Stns. 2, 4.

***LAGENA MARGINATA** (Walker & Boys)

Stns. 2, 4, 5, 6, 7, 8.

LAGENA MARGINATA var. **INAEQUILATERALIS** J. Wright

Stns. 1, 2, 4.

LAGENA MARGINATO-PERFORATA Seguenza

Stn. 7.

LAGENA MELO (d' Orb.)

Stn. 6.

LAGENA MILLETTII Chaster

Stns. 2, 4.

***LAGENA ORBIGNYANA** (Seg.)

Stns. 1, 2, 4, 5, 6, 7, 8.

***LAGENA ORNATA** (Will.)

Stns. 2, 4.

LAGENA PERLUCIDA Will.

Stns. 2, 6, 8.

***LAGENA QUADRATA** (Will.)

Stns. 2, 4.

LAGENA RETICULATA (Macgillivray)

Stns. 2, 7, 8.

LAGENA RIZZAE (Seguenza)

Stn. 4.

LAGENA SCHLICHTI (Sylvestri)

Stns. 2, 4.

***LAGENA SEMISTRIATA** Will.

Stns. 1, 2, 4, 6, 8.

***LAGENA SQUAMOSA** (Mont.)

Stns. 1, 2, 4, 5, 6, 7, 8.

LAGENA SQUAMOSA var. **MONTAGUI** Alcock

Stn. 4.

LAGENA STEWARTII J. Wright

Stn. 2.

*LAGENA STRIATA (d' Orb.)

Stns. 2, 4, 5, 6, 8.

LAGENA STRIATO-PUNCTATA P. & J.

Stn. 6.

*LAGENA SULCATA (Walker & Jacob)

Stns. 2, 4, 6, 7, 8.

*LAGENA SULCATA var. INTERRUPTA Will.

Stns. 1, 2, 5, 7.

LAGENA WILLIAMSONI (Alcock)

Stns. 1, 2, 4, 5, 6, 7, 8.

Sub-Family *Nodosarinae*

Nodosaria calomorpha Reuss.

*NODOSARIA COMMUNIS d' Orb.

Stns. 1, 2, 4, 6, 8.

NODOSARIA OBLIQUA (Linné)

Stn. 4.

*NODOSARIA PYRULA d' Orb.

Stns. 2, 4, 6.

*NODOSARIA SCALARIS (Batsch)

Stns. 2, 4, 6, 8.

LINGULINA BILOCULI J. Wright

Stn. 4.

LINGULINA CARINATA d' Orb.

Stn. 4.

ORTHOCERINA BICAMERATA H.-A. & E.

Stn. 4.

VAGINULINA LEGUMEN (Linné)

Stns. 2, 5.

VAGINULINA LINEARIS (Mont.)

Stns. 2, 4.

*CRISTELLARIA CREPIDULA (Fichtel & Moll.)

Stns. 2, 4, 5, 7.

CRISTELLARIA CULTRATA (Montfort)

Stns. 2, 4, 6.

CRISTELLARIA GIBBA d' Orb.

Stns. 2, 6.

CRISTELLARIA HAUERINA d' Orb.

Stns. 1, 2.

Cristellaria italica (Defr.)**CRISTELLARIA ORBICULARIS** (d' Orb.)

Stn. 2.

***CRISTELLARIA ROTULATA** (Lam.)

Stns. 1, 2, 4, 8.

Cristellaria vortex (F. & M.)*Amphicoryne falx* (J. & P.)Sub-Family *Polymorphininae***POLYMORPHINA COMMUNIS** d' Orb.

Stns. 2, 4, 5, 7, 8.

POLYMORPHINA COMPLEXA Sidebottom

Stns. 2, 4.

***POLYMORPHINA COMPRESSA** d' Orb.

Stns. 2, 4, 6, 7, 8.

POLYMORPHINA CONCAVA Will.

Stns. 1, 2.

***POLYMORPHINA GIBBA** d' Orb.

Stns. 2, 4, 6, 8.

***POLYMORPHINA LACTEA** (W. & J.)

Stns. 1, 2, 4, 5, 6, 8.

(***POLYMORPHINA LACTEA** var. **OBLONGA** Will. see *P. williamsoni*).**POLYMORPHINA MYRISTIFORMIS** Will.

Stns. 1, 2, 4.

POLYMORPHINA OBLONGA d' Orb.

Stn. 2.

POLYMORPHINA ROTUNDATA (Born.)

Stns. 2, 4.

POLYMORPHINA SORORIA Reuss.

Stns. 2, 4.

POLYMORPHINA WILLIAMSONI Terquem

Stns. 1, 2, 4, 6, 8.

***UVIGERINA ANGULOSA** Will.

Stns. 1, 2, 4, 5, 6, 7.

Family **Globigerinidae*****GLOBIGERINA BULLOIDES** d' Orb.

Stns. 2, 4, 6.

GLOBIGERINA DUTERTREI d' Orb.

Stn. 4.

Globigerina inflata d' Orb.

GLOBIGERINA RUBRA, var. ELEVATA d' Orb.

Stns. 2, 4.

Orbulina universa d' Orb.

CANDEINA NITIDA d' Orb.

Stn. 2.

Sphaeroidina dehiscens P. & J.

Family **Rotaliidae.**

Sub-Family *Spirillininae*

SPIRILLINA GROOMII Chapman

Stn. 2.

SPIRILLINA LIMBATA, var. DENTICULATA Brady

Stn. 2.

*SPIRILLINA MARGARITIFERA Will.

Stn. 2.

SPIRILLINA OBCONICA Brady

Stn. 2.

SPIRILLINA OBCONICA var. CARINATA Halkyard

Stn. 2.

*SPIRILLINA VIVIPARA Ehrb.

Stns. 1, 2, 4, 6, 7.

SPIRILLINA VIVIPARA var. RUNIANA H.-A. & E.

Stns. 2.

SPIRILLINA WRIGHTII H.-A. & E.

Stn. 2.

Sub-Family *Rotaliinae*

*PATELLINA CORRUGATA Will.

Stns. 1, 2, 4, 5, 6, 7.

DISCORBINA BACCATA H.-A. & E.

Stns. 2, 5, 7.

Discorbina bertheloti (d' Orb.)

DISCORBINA CHASTERI H.-A. & E.

Stns. 4, 6.

*DISCORBINA GLOBULARIS (d' Orb.)

Stns. 1, 2, 4-8.

DISCORBINA IRREGULARIS Rhumbler

Stns. 1, 2.

DISCORBINA LAURIEI H.-A. & E.

Stn. 1.

DISCORBINA MAMILLA (Will.)

Stns. 1-5.

DISCORBINA MEDITERRANENSIS (d' Orb.)

Stns. 1-7.

DISCORBINA MILLETTII J. Wright

Stns. 2, 4.

DISCORBINA NITIDA (Will.)

Stns. 1, 2, 4, 5, 6, 7.

***DISCORBINA ORBICULARIS** (Terq.)

Stns. 1, 5, 7.

***DISCORBINA PARISIENSIS** (d' Orb.)

Stn. 7.

DISCORBINA PLANORBIS (d' Orb.)

Stns. 2, 6.

DISCORBINA PRAEGERI H.-A. & E.

Stns. 1-7.

DISCORBINA PUSTULATA H.-A. & E.

Stn. 2.

***DISCORBINA ROSACEA** (d' Orb.)

Stns. 1-8.

DISCORBINA TABERNACULARIS Brady

Stn. 5.

DISCORBINA TUBERCULATA (Balkwill & Wright)

Stns. 2, 4, 6.

DISCORBINA TURBO (d' Orb.)

Stns. 2, 4, 6.

DISCORBINA VILARDEBOANA (d' Orb.)

Stns. 2, 6.

DISCORBINA WRIGHTII Brady

Stns. 2, 4.

***PLANORBULINA MEDITERRANENSIS** d' Orb.

Stns. 1-8.

TRUNCATULINA AKNERIANA (d' Orb.)

Stns. 1, 2, 3.

*TRUNCATULINA LOBATULA (W. & J.)

Stns. 1-8.

TRUNCATULINA PYGMAEA Hantk.

Stn. 2.

TRUNCATULINA REFULGENS (Montf.)

Stns. 2, 3, 5, 6, 7.

TRUNCATULINA UNGERIANA (d' Orb.)

Stns. 1, 2, 3, 5, 7.

TRUNCATULINA VARIABILIS d' Orb.

Stns. 4, 5, 8.

SIPHONINA TUBULOSA Cushman

Stns. 2, 4.

PULVINULINA AURICULA (F. & M.)

Stn. 4.

PULVINULINA CONCENTRICA P. & J.

Stn. 2.

PULVINULINA HALIOTIDEA H.-A. & E.

Stns. 1-7.

PULVINULINA KARSTENI (Reuss.)

Stns. 2, 6.

*PULVINULINA MENARDII (d' Orb.)

Stn. 4.

PULVINULINA PUNCTULATA (d' Orb.)

Stns. 2, 4.

Pulvinulina repanda (F. & M.)

PULVINULINA REPANDA var. CONCAMERATA (Mont.)

Stn. 2.

PULVINULINA SCITULA Brady

Stns. 2, 4.

*ROTALIA BECCARII (Linné)

Stns. 1-8.

ROTALIA PERLUCIDA H.-A. & E.

Stn. 4.

Sub-Family *Tinporinae*

GYPSINA INHAERENS Schultze

Stns. 2, 5, 7.

Family **Nummulinidae**
Sub-Family *Polystomellinae*

NONIONINA ASTERIZANS (F. & M.)

Stns. 1, 2, 4, 6, 7.

NONIONINA BOUEANA d' Orb.

Stns. 1, 6.

*NONIONINA DEPRESSULA (W. & J.)

Stns. 1-8.

NONIONINA PAUPERATA B. & W.

Stns. 2, 4, 5, 7.

Nonionina scapha (F. & M.)

*NONIONINA STELLIGERA d' Orb.

Stns. 2-4.

*NONIONINA TURGIDA (Will.)

Stn. 2.

*NONIONINA UMBILICATULA (Mont.)

Stn. 2.

NONIONELLA AURICULA H.-A. & E.

Stn. 4.

Polystomella arctica P. & J.

*POLYSTOMELLA CRISPA (L.)

Stns. 1-8.

POLYSTOMELLA FABA (F. & M.)

Stns. 2, 4.

*POLYSTOMELLA MACELLA (F. & M.)

Stns. 1, 2, 3, 5, 6, 7.

*POLYSTOMELLA STRIATO-PUNCTATA (F. & M.)

Stns. 1-8.

POLYSTOMELLA STRIATO-PUNCTATA var. *SELSEYENSIS* H.-A. & E.

Stns. 1, 2, 5, 6, 7.

*POLYSTOMELLA SUBNODOSA (Münster)

Stn. 2.

Order HELIOZOA

Sub-Order *Aphrothoraca*

OXNERELLA MARITIMA Dobell [1917, p. 535]

Queen's Grounds, May 31/1920 ; good number on Sycon and Leucandra, Millbay Docks, June 2/4/1920, very common on Sycon (J.H.O.)

Order RADIOLARIA

Sub-Order *Actipylea*

ACANTHOCHIASMA FUSIFORME Haeckel [*Popofsky*, 1904, p. 49]

Occasionally from the Sound and outside ; in centrifuged water, spring to autumn, Sept. Nov. 1915, March, Sept. 1916 ; in masses, clinging together in spring and autumn (M.V.L.)

Sub-Order *Monopylea*

LITHOMELISSA SETOSA Jörgensen [*Schröder*, 1914, p. 101]

Occasionally from inside and outside the Sound, chiefly autumn, sometimes spring, Nov. Dec. 1915, April, May, 1916 (M.V.L.) : Nov. Dec. 1917 (G.E.W.)

AMPHIMELISSA SETOSA (Cleve) [*Schröder*, 1914, p. 106]

Occasionally inside and outside the Sound, Nov. Dec. 1915, May 1916 (M.V.L.)

PLAGIACANTHA ARACHNOIDES Claparède [*Schröder*, 1914, p. 78]

Tow nets off Penlee 24/11/22, a few specimens (M.V.L.)

Class SPOROZOA

Sub-Class TELOSPORIDIA

Order GREGARINAE

GONOSPORA MINCHINI E. S. Goodrich & H. L. M. Pixell-Goodrich [1920, p. 157]

In the ova of *Arenicola ecaudata*, Plymouth.

GONOSPORA (KALPIDORHYNCHUS) ARENICOLAE Cunningham [1907, p. 199]

Very common in coelom of *Arenicola ecaudata*, Plymouth (Pixell-Goodrich, 1916, p. 213)

GONOSPORA IRREGULARIS Minchin [1893, p. 291]

Blood vessels of *Holothuria forskali*, Plymouth. (Woodcock, 1906, p. 1)

GONOSPORA VARIA Léger [*Hentschel*, 1926, p. 137]

Coelom of *Audouinia tentaculata* (C.C.H.)

LITHOCYSTIS SCHNEIDERI Giard [*Pixell-Goodrich*, 1915 a, p. 96]

Coelomic cavity of all *Echinocardium cordatum* and *Spatangus purpureus* (H.P.-G.)

LITHOCYSTIS FOLIACEA Pixell-Goodrich [1915 a, p. 96]

In *Echinocardium cordatum*, Plymouth (H.P.-G.)

LITHOCYSTIS MICROSPORA Pixell-Goodrich [1915 a, p. 96]

In *Spatangus purpureus*, Plymouth (H.P.-G.)

LITHOCYSTIS MINCHINI Woodcock [1906, p. 20]

Coelomic wall of *Cucumaria saxicola*, about 40 per cent., Plymouth (Pixell-Goodrich, 1929, p. 280)

LITHOCYSTIS CUCUMARIAE Pixell-Goodrich [1929, p. 276]

Respiratory trees of *Cucumaria saxicola*, 28 per cent., Plymouth. (H.P.-G.)

POLYRHABDINA SPIONIS Mingazzini var. BIFURCATA Mackinnon and Ray, [1931 a, p. 444]

In the gut of *Scolecopsis fuliginosa*, Plymouth (D.M. and H.N.R.)

LECYTHION THALASSEMÆ Mackinnon and Ray [1931 a, p. 453]

In the gut of *Thalassema neptuni*, Plymouth (D.M. and H.N.R.)

HYPERIDION THALASSEMÆ Mackinnon and Ray [1931 b, p. 467]

In the gut of *Thalassema neptuni*, Plymouth (D.M. and H.N.R.)

HENTSCHELIA THALASSEMÆ Mackinnon and Ray [1931 a, p. 451]

In the gut of *Thalassema neptuni*, Plymouth (D.M. and H.N.R.)

UROSPORA ECHINOCARDII Pixell-Goodrich [1915 a, p. 97]

Coelomic cavity of Echinocardium and Spatangus, Plymouth (H.P.-G.)

SELENIDIUM CAULLERYI Brasil [Ray, 1930 a, p. 374]

In the gut of *Protula tubularia*, Plymouth (H.N.R.)

SELENIDIUM MESNILI Brasil [Ray, 1930 a, p. 377]

In the gut of *Myxicola infundibulum*, Plymouth (H.N.R.)

SELENIDIUM SPIONIS (Kölliker) [Ray, 1930 a, p. 381]

About 97 per cent. of *Scolecopsis fuliginosa* from Rum Bay are infected in the gut (H.N.R.)

SELENIDIUM FOLIATUM Ray [1930 a, p. 382]

About 70 per cent. of the Plymouth *Scolecopsis fuliginosa* are infected in the gut (H.N.R.)

SELENIDIUM PLICATUM Ray [1930 a, p. 387]

In the gut of *Cirratulus cirratus*, Plymouth (H.N.R.)

SELENIDIUM BRANCHIOMMATIS Ray [1930 a, p. 388]

In the gut of *Branchiomma vesiculosum*, Plymouth (H.N.R.)

SELENIDIUM ALLENI Ray [1930 a, p. 388]

In the gut of *Branchiomma vesiculosum*, Plymouth (H.N.R.)

SELENIDIUM SABELLÆ (Lankester) [Ray, 1930 a, p. 389]

In the gut of *Sabella pavonina*, Plymouth (H.N.R.)

SELENIDIUM BRASILI Ray [1930 a, p. 390]

In the gut of *Pomatoceros triqueter*, Plymouth (H.N.R.)

SELENIDIUM TERESELLAE (Kölliker) [Ray, 1930 a, p. 391]

In the gut of *Terebella lapidaria*, Plymouth (H.N.R.)

SELENIDIUM sp.

Gut of *Pomatoceros* and many other polychaetes (H.P.-G.)

Order COCCIDIOMORPHA

Sub-Order *Coccidia*

AGGREGATA EBERTHI Labbé [1896, p. 535]

Parasite of intestine of all *Sepia officinalis*, Plymouth (Pixell-Goodrich, 1914, p. 171)

MEROCYSTIS KATHAE Dakin [Dakin, 1911, p. 147]

Parasite in the kidney of *Buccinum undatum*, (bought in Plymouth market), July, 1919 (P.D.)

CRYSTALLOPORA CRYSTALLOIDES (Thélohan) [Labbé, 1899, p. 63]

Parasite in the pyloric coeca and intestine of *Onos tricirratus*, Wembury Bay, July 16th, 1919 (P.D.)

Family **Adeleidae**

DOBELLIA BINUCLEATA Ikeda [1914, p. 206]

A gut parasite of the sipunculid *Phascolosoma minutum*(=Petalostoma), Plymouth (i.i.)

Sub-Order *Haemosporidia*

HAEMOGREGARINA SIMONDI Laveron & Mesnil [1901, p. 572]

In *Solea vulgaris*, May 1911, Aug.-Sept. 1912, Plymouth (Henry, 1913, p. 570)

HAEMOGREGARINA QUADRIGEMINA Brumpt & Lebailly [1904, p. 613]

In *Callionymus lyra*, May 1911, Plymouth (Henry, 1913, p. 571)

HAEMOGREGARINA COTTI Brumpt & Lebailly [1904, p. 613]

In *Cottus bubalis*, May 1911, Aug.-Sept. 1912, Plymouth (Henry, p. 571)

HAEMOGREGARINA BIGEMINA Laveron & Mesnil [1901, p. 572]

In *Blennius pholis* May 1911, Aug.-Sept. 1912, Plymouth (Henry, p. 571)

HAEMOGREGARINA POLYPARTITA Neumann [1909]

In *Gobius paganellus* May 1911, Aug.-Sept. 1912, Plymouth (Henry, p. 571)

HAEMOGREGARINA PLATESSA Lebailly [1904, p. 576]

On *Pleuronectes platessa*, Aug.-Sept. 1911, Plymouth (Henry, 1913, p. 572)

HAEMOGREGARINA CLAVATA Neumann [1909]

In *Solea lutea*, Aug.-Sept. 1911, Plymouth (Henry, 1913, p. 572)

DORISIELLA SCOLELEPIDIS Ray [1930 b, p. 471]

In the gut of *Scolecopsis fuliginosa*, Plymouth (H.N.R.)

"MONOCYSTIS" THALASSEMÆ Lankester [Mackinnon and Ray, 1929, p. 877]

In the eggs of *Thalassema neptuni*, Plymouth (D.M. and H.N.R.)

Sub-Class NEOSPORIDIA

Order CNIDOSPORIDIA

Sub-Order Myxosporidia

MYXIDIUM INCURVATUM (Thélohan) [1894, p. 341]

In *Blennius pholis* and *B. ocellaris*, *Rhombus maximus*, *Callionymus lyra*, *Arnoglossus laterna*, *Pleuronectes flesus*, Plymouth, 1920 (J.S.D.)

MYXIDIUM SPHERICUM Thélohan [1894, p. 341]

In *Gadus merlangus*, *G. minutus*, Plymouth, 1920 (J.S.D.)

MYXIDIUM INTERMEDIUM Dunkerly [1921 b, p. 331]

In gall bladder of *Pleuronectes flesus*, Plymouth, 1920 (J.S.D.)

CERATOMYXA ARCUATA Thélohan [1894, p. 335]

In *Blennius ocellaris*, *Callionymus lyra*, *Gadus merlangus*, *Arnoglossus laterna*, *Morone labrax*, Plymouth, 1920 (J.S.D.)

CERATOMYXA LATA Dunkerly [1921 b, p. 330]

Gall bladder of *Capros aper* and *Pleuronectes microcephalus*, Plymouth, 1920 (J.S.D.)

CERATOMYXA TRUNCATA Thélohan [1894, p. 336]

In *Clupea pilchardus*, Plymouth, 1920 (J.S.D.)

CERATOMYXA DUBIA Dunkerly [1921 b, p. 331]

In gall bladder of *Cottus bubalis*, Plymouth, 1920 (J.S.D.)

CERATOMYXA APPENDICULATA Thélohan [1894, p. 337 ; Labbé, 1899, p. 91]

In gall bladder of *Lophius piscatorius*, Eddystone, 10.7.19 (P.D.) :
in *Lophius piscatorius*, Plymouth, 1920 (J.S.D.)

CERATOMYXA SPHAERULOSA Thélohan [1894, p. 334]

In *Pleuronectes limanda*, Plymouth, 1920 (J.S.D.)

COCCOMYXA MOROVI Léger & Hesse [1907, p. 85]

In *Clupea pilchardus*, Plymouth, 1920 (J.S.D.)

CHLOROMYXUM QUADRATUM Thélohan [1894, p. 347]

In muscles of *Cottus bubalis*, Plymouth, 1920 (J.S.D.)

CHLOROMYXUM LEYDIGI Mingazzini [Thélohan, 1894, p. 345]

In *Mustelus vulgaris*, *Scyllium catulus* and *Acanthias vulgaris*, Plymouth, 1920 (J.S.D.)

SPHAEROMYXA LONGA Dunkerly [1921 b, p. 332]

In gall bladder of *Gadus minutus*, Plymouth, 1920 (J.S.D.)

SPHAEROMYXA BALBIANII (Thélohan) [1894, p. 342].

In *Onos mustela*, Plymouth, 1920 (J.S.D.)

SPHAEROMYXA OVATA Dunkerly [1921 b, p. 332]

In gall bladder of *Onos mustela*, Plymouth, 1920 (J.S.D.)

Sub-Order *Microsporidia*

GLUGEA LOPHII (Doflein) [1909, p. 799 ; Kudo, 1924, p. 80]

Parasite in the nervous system of *Lophius piscatorius*, Eddystone, 10.7.19 (P.D.) : on nerves of *Lophius piscatorius*, Plymouth, 1920 (J.S.D.)

NOSEMA OVOIDEUM (Thélohan) [Labbé, 1899, p. 106]

Parasite in the liver of *Onos tricirratu*s, Wembury B., 16.7.19 (P.D.)

PLISTOPHORA TYPICALIS Gurley [Kudo, 1924, p. 167]

In liver of *Cottus bubalis*, Plymouth (J.S.D.)

THELOHANIA OCTOSPORA Henneguy [Kudo, 1924, p. 134]

In muscles of *Leander (Palaemon) serratus*, Plymouth tank (Pixell-Goodrich, 1920, p. 17)

MICROSPORIDIA SP.

In tissues of *Pinnotheres pisum*, R. Yealm, about 42 per cent. infected in 1922 (H.P.-G.)

Sub-Order *Actinomyxidia*

TETRACTINOMYXON INTERMEDIUM Ikeda [1912, p. 248]

Coelomic parasite of *Phascolosoma minutum* (=Petalostoma), Plymouth (I.I.)

TETRACTINOMYXON IRREGULARE Ikeda [1912, p. 270]

Coelomic parasite of *Phascolosoma minutum* (=Petalostoma), Plymouth (I.I.)

Order HAPLOSPORIDIA

HAPLOSPORIDIUM (MINCHINIA) CHITONIS Lankester [Debaisieux, 1920, p. 294]

Parasite of *Lepidochiton cinereus*, Rum Bay, June and July, 1919 (P.D.) : About 2/3 infected (Pixell-Goodrich, 1915 b, p. 446)

HAPLOSPORIDIUM NEMERTIS Debaisieux [1920, p. 295]

Parasite of *Lineus bilineatus* ; River Yealm, muddy bottom, June and July, 1919 ; one half of the *Lineus* were infected (P.D.)

PSEUDOKLOSSIA CHITONIS Debaisieux [1919, p. 1401]

Parasite of *Acanthochites crinitus* from under the Laboratory, June, October, 1919 (P.D.)

PSEUDOKLOSSIA PATELLA Debaisieux [1919, p. 1402]

Parasite of *Patella vulgata*, Rum Bay, June, October, 1919 ; one half of the *Patella* were infected, only with few parasites (P.D.)

Class **CILIOPHORA**

Sub-Class CILIATA

Order HOLOTRICHA

HOLOPHRYA OBLONGA (Maupas) [*De Morgan*, 1925, p. 601]

Drake's I. tank, Plymouth Laboratory, Feb. 1916 ; dredgings from New Grounds, July 1920 ; dredgings from Asia Shoal, New Grounds and Millbay, July, August, 1922 (w. DE M.)

HOLOPHRYA CORONATA De Morgan [1925, p. 609]

Drake's I. tank, Plymouth Laboratory and dredgings from Asia Shoal, New Ground, and Millbay, May to September, 1914 (w. DE M.)

HOPLITOPHRYA (ANOPLOPHRYA) BRASILI (Léger et Duboscq) [*Hentschel*, 1925, p. 217]

Intestine of *Audouinia tentaculata*, Plymouth (C.C.H.)

CONCHOPHRYUS MYTILI De Morgan [1925, p. 616]

In mantle cavity of *Mytilus edulis*, 1924 (w. DE M.)

PRORODON MARINUS (Möbius) [*De Morgan*, 1925, p. 626]

Drake's Island tank, Plymouth Laboratory, not common, 1924 (w. DE M.)

CHAENEA ELONGATA (Claparède and Lachman) [*De Morgan*, 1925, p. 629]

Drake's I. tank in fair numbers, 1924 (w. DE M.)

FRONTONIA FUSCA (Quenn.) [*De Morgan*, 1925, p. 634]

Drake's I. tank among algae, not common, March and April, 1922 (w. DE M.)

ANCISTRUM MYTILI (Quenn.) [*De Morgan*, 1925, p. 635]

Among the branchial filaments of *Mytilus edulis*, frequent (w. DE M.)

LIONOTUS FASCIOLA (O. F. Müller) [*De Morgan*, 1925, p. 639]

Often in numbers in the film on the top of dredgings (w. DE M.)

DYSTERIA ARMATA (Huxley) [*De Morgan*, 1925, p. 642]

Common among algae, Drake's I. tank, March and April (w. DE M.)

AEGYRIA OLIVA (Clap. and Lach.) [*De Morgan*, 1925, p. 649]

Drake's I. tank, only solitary individuals (w. DE M.)

LACRYMARIA OLOR (O. F. Müller) [*De Morgan*, 1925, p. 652]

Drake's I. tank, plentiful in March (w. DE M.)

LOXOPHYLLUM ROSTRATUM (Cohn) [*De Morgan*, 1925, p. 655]

Drake's I. tank, fairly common (w. DE M.)

TRACHELOCERCA PHOENICOPTERUS Cohn [*De Morgan*, 1926, p. 23]

Always to be found in Drake's I. tank, very abundant in summer, less so in winter (w. DE M.)

URONEMA MARINA Dujardin [*De Morgan*, 1926, p. 34]

Very common among decaying algae and organic matter (w. DE M.)

CYCLIDIUM GLAUCOMA O. F. Müller [*De Morgan*, 1926, p. 35]

Among putrid organic matter, decaying algae and in the film formed by bacteria and zoogloea (w. DE M.)

BLEPHAROSTOMA FIGERRIMA (Cohn) [*De Morgan*, 1926, p. 38]

Abundant in decaying organic matter (w. DE M.)

LEMBUS ELONGATUS (Clap. and Lach.) [*De Morgan*, 1926, p. 48]

Abundant in putrifying cultures (w. DE M.)

TIARINA FUSUS Clap. and Lach. [*Hamburger and Buddenbrock*, 1911, p. 23]

Common singly in very fine tow-nettings from Sound and outside (M.V.L.)

PTYSSOSTOMA THALASSEMAE Hentschel [1927, p. 651]

Intestine of *Thalassema neptuni* from Plymouth, Rum Bay, Wembury, April 1922, Easter 1925, 1926 (C.C.H.)

FOETTINGERIA ACTINIARUM (Claparède) [*De Morgan*, 1924, p. 343]

Parasitic in *Actinia equina* (= *A. mesembryanthemum*) from Plymouth and neighbouring bays (w. DE M.)

Order HETEROTRICHA

Sub-Order *Polytricha*

PORPOSTOMUM NOTATUM (Möbius) [*De Morgan*, 1925, p. 614]

Drake's I. tank, a few any month of the year, in 1914 and 1916 a large number in February and in March, in 1922 few (w. DE M.)

CONDYLOSTOMUM PATENS (O. F. Müller) [*De Morgan*, 1925, p. 619]

Very common and widely distributed; Drake's I. tank nearly all seasons, abundant Feb. and May (w. DE M.)

SPIROSTOMUM LANCEOLATUM (Gruber) [*De Morgan*, 1925, p. 631]

Drake's I. tank, fairly abundant except in Jan., Feb. and March (w. DE M.)

Sub-Order *Oligotricha*

Family **Tintinnidae**

PTYCHOCYLIS URNULA (Clap. and Lach.) [*Jørgensen*, 1927, p. 13]

Var. *pelagica* Brandt, rare in summer, centrifuged, Sound and outside (M.V.L.)

HELICOSTOMELLA SUBULATA (Ehrenberg) [*Jørgensen*, 1924, p. 25]

Sound and outside, tow nets and centrifuge, July to October, chiefly August (M.V.L.)

FAVELLA SERRATA (Möbius) [*Jørgensen*, 1924, p. 26]

Common, Sound, close to shore, tow nets and centrifuge, chiefly summer (M.V.L.)

EPILOCYLIS ACUMINATA (von Daday) [*Jørgensen*, 1924, p. 56]

Very rare, centrifuge, Sound, June 23/20 (M.V.L.)

TINTINNOPSIS BEROIDEA Entz [*Jørgensen*, 1924, p. 66]

Common, Sound, tow nets and centrifuge, all seasons (M.V.L.)

TINTINNOPSIS CAMPANULA (Ehrenberg) [*Jørgensen*, 1924, p. 68]

Fairly common, Sound, tow nets and centrifuge, chiefly late summer and early spring (M.V.L.)

STENOSEMELLA VENTRICOSA (Clap. and Lach.) [*Jørgensen*, 1924, p. 95]

Very common, Sound, tow nettings and centrifuge, all seasons especially late summer, often close to coast (M.V.L.)

Family Halteridae

TONTONIA APPENDICULARIFORMIS Fauré-Fremiet [*Fauré-Fremiet*, 1924, p. 68]

Occasionally, Sound and outside, centrifuge and tow nets, chiefly in summer (M.V.L.)

LOHMANNIELLA OVIFORMIS Leegaard [1915, p. 28]

Rare, centrifuge, outside Breakwater, August (M.V.L.)

LABOEIA ACUMINATA Leegaard [1915, p. 22]

Very rare, centrifuge, outside Breakwater (M.V.L.)

Order HYPOTRICHIA

HOLOSTICHA RUBRA (Ehrenberg) var. *flava* [*De Morgan*, 1926, p. 40]

Generally found in Drake's Island tank, abundant in summer (W. DE M.)

HOLOSTICHA MULTINUCLEATA Maupas [*De Morgan*, 1926, p. 45]

Drake's I. tank, abundant in summer months (W. DE M.)

Order PERITRICHIA

COTHURNIA AFFINIS Kent [*Hickson*, 1903, pp. 413, 416]

On Bowerbankia, piles of G. W. Dock landing stage, 27.9.11; on Pedicellaria, on Inachus, New Gds., 29.9.11 (J.H.O.)

Sub-Class SUCTORIA

ACINETA TUBEROSA Ehrenberg var. *foetida* Maupas [1881, p. 315 as *A. foetida*]

Abundant in a culture of oyster's heart killed in urea and put in sea water from outside, forming embryos, 12.2.21; also common in dredgings (J.H.O.)

Phylum **PORIFERA**Class **CALCAREA**Family **Homocoelidae****LEUCOSOLENIA BOTRYOIDES** (Ellis and Solander) [*Bowerbank*, 1874, 3, p. 7]

On the shore between tide-marks, not abundant except in certain localities (E.A.M.): Wembury B., very abundant, on seaweeds together with *Grantia compressa* (E.A.M.)

LEUCOSOLENIA COMPLICATA (Montagu) [1818, p. 97]

Fairly common in rock-pools between tide-marks; also in deeper water off the Mewstone and elsewhere (E.A.M.): recorded from 24 positions S.W. of Eddystone, 40-53 fms., mostly on Hydroids, Cellaria and Cellepora; also on shells of Pecten and tubes of Pallasia and on Inachus (Crawshay, 1912, p. 303)

LEUCOSOLENIA VARIABILIS Haeckel [*Minchin*, 1904, p. 373]

Common everywhere in rock-pools between tide-marks (E.A.M.): rocks under Hoe in abundance (G.P.B.)

LEUCOSOLENIA CORIACEA (Montagu) [*Bowerbank*, 1874, 3, p. 8; as *Clathrina coriacea* in 1904 Fauna List]

Found in small quantities nearly everywhere on rocks between tide-marks; near ladies' bathing place; on rocks under pier, etc. (E.A.M.): rocks under Hoe in abundance (G.P.B.): Reny Rks. (W.G. & R.A.T.): one specimen S.W. of Eddystone, 42 fms., on a Pecten shell (Crawshay, 1912, p. 301)

LEUCOSOLENIA LACUNOSA (Johnston) [*Bowerbank*, 1874, 3, p. 9; as *Clathrina lacunosa* in 1904 Fauna List]

Occasionally (W.G.): Rame-Eddystone Gds., not uncommon (S.P.): only below tide-marks and in deep water (E.A.M.): Mewstone Ledge 27.1.08; 3 specimens S.W. of Eddystone, 42-50 fms., on a shell of Fusus, on Scrupocellaria and on Sertularella (Crawshay, 1912, p. 302)

LEUCOSOLENIA PRIMORDIALIS (Haeckel) [1869, pp. 236-254]

Six specimens at 5 positions S.W. of Eddystone, 42-50 fms., on shell of Fusus occupied by Eupagurus, on tube of Pallasia, on Inachus, on dead valve of Pecten, on Volsella (Crawshay, 1912, p. 301)

LEUCOSOLENIA CONTORTA Bowerbank [*Minchin*, 1905, p. 3]

A small patch of spicules undoubtedly belonging to this species found attached to a surface section of a Reniera, S.W. of Eddystone; one spicule apparently also of this species from another position, on a section of *Vibulinus stuposus*, 49-52 fms. (Crawshay, 1912, p. 302)

Family **Sycettidae****SYCON CORONATUM** (Ellis and Solander) [*Bowerbank*, 1874, 3, p. 3 as *S. ciliatum*]

Common at most rocky stations at low water (S.P., E.A.M.): occurs in less exposed situations than *Grantia compressa*; common under the Hoe except in autumn (G.P.B.): recorded as *Sycon ciliatum* (Fabricius); five

specimens at one, one at another position S.W. of Eddystone, 44 fms. (Crawshay, 1912, who regards this species as synonymous with *S. coronatum* p. 303.)

SALCOMBE. Dredged in Harbour (E.J.A. and R.A.T.)

Family **Grantiidae**

GRANTIA COMPRESSA (Fabricius) [*Bowerbank*, 1874, 3, p. 1]

Common at low water on most rocky stations (S.P.): Millbay Docks, large specimens (E.J.A., R.A.T., S.P.): this form appears to be an annual; the ova develop in Feb., free larvae occur in July, and sponges 3 mm. long in Sept. (G.P.B.): on bottom of "Vixen," Millbay Dock, 24.7.07 (L.R.C.): very few under Lab., a few with embryos 20.7.09 (A.J.S.)

SALCOMBE. On the rocks at mouth of Harbour (Allen and Todd, 1900, p. 184)

GRANTIA CAPILLOSA (O. Schmidt) [1862, p. 17]

At 9 positions S.W. of Eddystone, one to three specimens, some very young, 40-51 fms. (Crawshay, 1912, p. 304)

SYCUTE SP. [*Dendy & Row*, 1913, p. 763]

One mile S. of Yealm Hd., 1.4.21 (G.P.B.)

LEUCONIA FISTULOSA (Johnston) [1842, p. 181]

Six specimens, Queen's Gds. and New Gds., dredged, 3.6.09, 22.6.09 (A.J.S.): one specimen S.W. of Eddystone, 40 fms. (Crawshay 1912, p. 305): Eddystone Gds., 21.9.16 (L.R.C.)

APHROCERAS CLIARENSIS (Stephens) [1912, Pt. 59, p. 14]

Wembury B., April 1912, collected by Dr. Orton (A. Dendy, 1914, p. 258)

UTE SP. [*Minchin*, 1900, p. 110]

One mile S. of Erme, Bigbury Bay, 14.4.21 (G.P.B.)

Class **DEMOSPONGIARIA**

Sub-Class TETRACTINELLIDA

Family **Plakinidae**

OSCARELLA LOBULARIS (Schmidt) [1862, p. 80]

Cawsand B., July 1906; Rum B., Dec. 06; Reny Rks., 18.9.07 (L.R.C.): intertidal and shallow water, Plymouth, Sept. 1928 (M.W. DE L.): Rum B. under stones, 8.2.24 young ova present at base of spongophore (J.H.O.)

Sub-Class MONAXONELLIDA

Order HADROMERINA

Family **Tethyidae** (= **Donatiidae**)

TETHYA (= **DONATIA**) **AURANTIUM** Pallas (= *T. lyncurium* (L.)) [*Bowerbank*, 1874, 3, p. 38]

Mewstone Ledge (T.V.H., S.P.): 4½ m. S.E. of Mewstone, 26.9.94 (G.P.B.): one specimen S.W. of Eddystone, 50 fms. (Crawshay, 1912, p. 305): 5 specimens (4 gemmulating), Revelstoke Pt. bearing N. by E. 3½-4 miles,

dredge, 24.9.25 ; 9 specimens (5 gemmulating, one studded over with little gemmules), Revelstoke Pt., bearing N. by E. 4 m. about, dredge, 1.12.25 ; several specimens studded with gemmules, Revelstoke Pt. bearing N. by E., dredge, 9.2.26 ; 2 specimens (both with gemmules) Mewstone Ledge, dredge, 16.3.26 (A.J.S.) : Mouth of Plymouth Harbour, 1928 (M.W. DE L.)

Family Clionidae

CLIONA CELATA Grant [*Bowerbank*, 1874, 3, p. 95]

Millbay Ch. ; Queen's Gd. (T.V.H.) : Millbay Dock, common on piles (R.A.T.) : Mewstone Gds. (T.V.H., R.A.T.) : Eddystone Gds. (E.J.A.) : Rame-Eddystone Gds. (E.J.A.) : mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.). Crawshay, 1912, p. 306, records specimens of *Cliona* sp. boring in dead shells very commonly S.W. of Eddystone, 40-49 fms.

SALCOMBE. Boring in shells dredged in Harbour (Allen and Todd, 1900, p. 185)

Family Polymastiidae

POLYMASTIA MAMMILLARIS (O. F. Müller) [*Bowerbank*, 1874, 3, p. 31]

Millbay Ch. ; Mewstone Ledge ; Yealm R. (T.V.H.) : 4½ m. S.E. of the Mewstone (G.P.B.) : 2 specimens on Pecten, from two positions S.W. of Eddystone 43-49 fms. (Crawshay, 1912, p. 306) : Mewstone Ledge, 28.6.07 (L.R.C.) : mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

POLYMASTIA ROBUSTA Bowerbank [*Bowerbank*, 1866, 2, p. 62]

6 specimens S.W. of Eddystone at 6 different positions, 43-51 fms. (Crawshay, 1912, p. 306) : Eddystone N. 27 E. 22 m., 11.6.06 (L.R.C.) : mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

POLYMASTIA AGGLUTINANS Ridley and Dendy [1887, p. 212]

Single specimens at 6 positions, S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 307)

Family Suberitidae

FICULINA FICUS (L.) recorded as *Suberites domuncula* in 1904 fauna list [*Bowerbank*, 1874, 3, p. 91, as *Hymeniacedon suberea*]

Millbay Ch. (T.V.H., R.A.T., G.P.B.) : Cattewater (T.V.H.) : Mewstone Gds. (T.V.H., R.A.T., G.P.B.) : Eddystone Gds. ; Rame-Eddystone Gds. (E.J.A.) : R. Yealm (E.J.A., T.V.H.) : at several positions S.W. of Eddystone 40-49 fms. (Crawshay, 1912, p. 307) : on piles in Millbay Dock, 22.8.07 (L.R.C.) : mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

SALCOMBE. On the shore at the Salstone, also common in dredgings in the channel, both in Kingsbridge Estuary and in Salcombe Harbour ; inhabited by hermit crab (Allen and Todd 1900, p. 185)

SUBERITES CARNOSUS (Johnston) [*Bowerbank*, 1874, 3, p. 91]

Two small specimens S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 308)

RHIZAXINELLA ELONGATA (Ridley and Dendy) [1887, p. 205]

One specimen S.W. of Eddystone, 44 fms. (Crawshay, 1912, p. 308)

Order HALICHONDRINA

Family Axinellidae

HALICHONDRIA PANICEA (Pallas) [*Bowerbank*, 1874, 3, p. 97]

Common ; Rum B., Drake's Is. (R.A.T.) : apparently an annual (G.P.B.) : Rat I., R. Lynher, Bull Pt. Hamoaze, massive development on Neille Pt. mussel bed, 1928 (E.P.) : mouth of Plymouth Harbour, Sept., 1928 (M.W. DE L.) : Crawshay (1912, p. 312) records a species of *Halichondria* on *Inachus* from S.W. of Eddystone, 40 fms., which he says may be *H. caduca* Bowerbank [1874, 3, p. 101] ; this is according to Burton a synonym of *H. panicea*.

SALCOMBE. On the rocks at mouth of Harbour (Allen and Todd, 1900, p. 184)

HALICHONDRIA BOWERBANKI Burton [1930, p. 489]

Plymouth (M.B. *op. cit.*)

STYLOTELLA COLUMELLA (Bowerbank) [1874, 3, p. 243]

Mouth of Plymouth Harbour, shallow water, Sept. 1928 (M.W. DE L.)

AXINELLA POLYPOIDES Schmidt [= *Isodictya dissimilis* Bowerbank, 1874, 3, p. 139]

4½ m. S.E. of Mewstone, 23 fms. 26.9.94 (G.P.B.) : mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

PACHAXINELLA SUBDOLA (Bowerbank) [*Burton*, 1930, p. 504]

Plymouth (M.B. *op. cit.*)

CIOCALYPTA PENICILLUS Bowerbank [1874, 3, p. 33]

Mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

HYMENIACIDON SANGUINEA (Grant) [*Bowerbank*, 1874, 3, p. 81]

Rocks under Hoe in abundance (G.P.B.) : intertidal and shallow water, Plymouth, Sept. 1928 (M.W. DE L.) : Rat Island at L.W., S. side ; small growth on mud at Weir Pt. nr. Cargreen 30.8.28 (E.P.)

SALCOMBE. Very abundant on the Salstone and other parts of the Kingsbridge Estuary, forming large clusters on the muddy gravel of the shore (Allen and Todd., 1900, p. 185)

HYMENIACIDON CARUNCULA Bowerbank [1874, 3, p. 81]

Tidal zone and shallow water, Plymouth, Sept. 1928 (M.W. DE L.)

PHAKELLIA VENTILABRUM (Johnston) [*Bowerbank*, 1874, 3, p. 57]

Mewstone Ledge, 6.10.02, and occasionally about the same locality (A.J.S.)

TRAGOSIA INFUNDIBULIFORMIS (L.) [*Bowerbank*, 1874, 3, p. 137]

Looe-Eddystone Gds. (S.P.)

Family Astraxinellidae

ADREUS FASCICULARIS (Bowerbank) [1874, 3, p. 45]

Mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

VIBULINUS STUPOSUS (Montagu) [*Bowerbank*, 1874, 3, p. 47]

4½ m. S.E. of Mewstone, 23 fms. 26.9.94 (G.P.B.) : at seven positions
15-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 323)

Family **Heteroxyidae**

BUBARIS VERMICULATA (Bowerbank) [1874, 3, p. 67]

At seven positions, 20-40 m. S.W. of Eddystone, 44-49 fms. on Pecten, Cardium, Lima (Crawshay, 1912, p. 319)

STYLOSTICHON PLUMOSUM (Montagu) [*Bowerbank*, 1874, 3, p. 61]

One specimen each at two positions 17-30 m. S.W. of Eddystone, 42-47 fms. ; one on tubes of *Pallasia murata* and one cementing together shell fragments and gravel with Cellaria (Crawshay, 1912, p. 319)

Order POECILOSCLERINA

Family **Desmacidonidae**

DESMACELLA SP. [*Ridley & Dendy*, 1887, p. 58]

Millbay Ch., 5.4.23 (G.P.B.)

DESMACIDON FRUTICOSUM (Johnston) [*Bowerbank*, 1874, 3, p. 155]

4½ m. S.E. of Mewstone, 23 fms., 26.9.94 (G.P.B.) : Revelstoke Pt., bearing N. by E. 4 m., dredge, 1.12.15, 2 specimens practically filled up with round spheres (? eggs or embryos) (A.J.S.) : mouth of Plymouth Harbour, dredged, Sept. 1928 (M.W. DE L.)

MYCALE CONTARENI (Martens) [*Top sent*, 1924, p. 83]

Plymouth 1923 (G.P.B.)

MYCALE SIMILARIS (Bowerbank) [1874, 3, p. 319 as Desmacidon]

Plymouth (M.B., 1930)

AMPHILECTUS PAUPERA (Bowerbank) [1874, 3, p. 139]

At five positions 7 to 30 m. S.W. of Eddystone, 40-47 fms., on *Sertularella gayi*, Pecten, *Porella compressa*, Pallasia tube and *Inachus leptochirus* (Crawshay, 1912, p. 314)

AMPHILECTUS EDWARDI (Bowerbank) ? [1874, 3, p. 148]

Mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

MYXILLA INCRUSTANS (Johnston) [*Bowerbank*, 1874, 3, p. 108]

At 8 positions 7-46 m. S.W. of Eddystone, 40-53 fms. on *Inachus* and Cellaria and on hydroids and other objects (Crawshay, 1912, p. 317) : intertidal or shallow water, Plymouth, Sept. 1928 (M.W. DE L.)

MYXILLA ROSACEA (Lieberkühn) [*Lundbeck*, 1905, II, p. 138]

Intertidal or shallow water, Plymouth, Sept. 1928 (M.W. DE L.)

MYXILLA ROBERTSONI (Bowerbank) [1882, 4, p. 100]

One specimen, 38 m. S.W. of Eddystone, 49 fm. (Crawshay, 1912, p. 318)

IOPHON NIGRICANS (Bowerbank) 1874, 3, p. 113] (= *Iophon pattersoni* Bowerbank) [1874, 3, p. 115]

At two positions, 29-30 m. S.W. of Eddystone, 47-49 fms., attached to Lepralia and a fragment of Mactra (Crawshay, 1912, p. 317)

IOPHON HYNDMANI (Bowerbank) [1874, 3, p. 115 as Halichondria]
Plymouth (M. Burton, 1930).

LEPTOLABIS LUCIENSIS Topsent [1904, p. 184]
Plymouth (E.A.M.)

HYMEDESMIA BRONSTEDI Burton [1930, p. 497]

One specimen each at two positions 30-40 m. S.W. of Eddystone, 47-52 fms., on *Chlamys (Aequipecten) opercularis* and *Inachus leptochirus* (Crawshay, 1912, p. 318)

HYMEDESMIA STEPHENSI Burton [1930, p. 494]
Plymouth (M.B. *op. cit.*)

ENDECTYON DELAUBENFELSI Burton [1930, p. 492]
Plymouth (M.B. *op. cit.*)

MICROCIONA ATRASANGUINEA Bowerbank [1874, 3, p. 63]

On shore below Lab., Rum B., but especially Millbay Dock at L.W. springs, 25.2.24; blood red, often has *Rostanga coccinea* (feeding?) on it (J.H.O.): intertidal shallow water, Plymouth, Sept. 1928 (M.W. DE L.)

RASPAILIA HISPIDA (Montagu) [Bowerbank, 1874, 3, p. 43]

Mewstone Ledge, 18.7.07; at eleven positions, 7-48 m. S.W. of Eddystone, 47-52 fms. (Crawshay, 1912, p. 320)

RASPAILIA RAMOSA (Montagu) [Bowerbank, 1874, 3, p. 41]

At four positions, 29-31 m. S.W. of Eddystone, 47-52 fms. (Crawshay, 1912, p. 321)

RASPAILIA RADIOSA (Bowerbank) [1874, 3, p. 51]
Plymouth, Sept. 1928 (M.W. DE L.)

Family Haploscleridae

CHALINA OCLATA (Pallas) [Bowerbank, 1874, 3, p. 169]

Millbay Pit; Wembury B. (T.V.H.): mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

CHALINA CINEREA (Grant) [Bowerbank, 1874, 3, p. 121]

Mouth of Plymouth Harbour, Sept. 1928 (M.W. DE L.)

CHALINA RETICULATA (Bowerbank) [1874, 3, p. 77]

Millbay Deep, April 5th (G.P.B.)

CHALINA INDISTINCTA (Bowerbank) [1874, 3, p. 131]

6 specimens from four positions S.W. of Eddystone, on *Inachus*, *Pecten* and a *Chaetopterus* tube, 40-46 fms. (Crawshay, 1912, p. 312)

CHALINA PYGMAEA (Bowerbank) [1874, 3, p. 141]

One specimen on *Nemertesia* (Antennularia), S.W. of Eddystone, 44 fms.
(Crawshay, 1912, p. 313)

CHALINA Densa (Bowerbank) [1874, 3, p. 127]

One specimen S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 313).

Three other species not identified are recorded by Crawshay, 1912, pp. 313 and 314, from S.W. of Eddystone:—

CHALINA SP. (A). One specimen on *Inachus leptocheirus*, 49 fms.

CHALINA SP. (B). One specimen on *Nemertesia* (Antennularia), 49 fms.

CHALINA SP. (C). One specimen, 50 fms.

CHALINA MONTAGUI (Bowerbank) ? [1874, 3, p. 173]

Two specimens at two separate positions S.W. of Eddystone, 47-52 fms. (Crawshay, 1912, p. 310)

Incertae sedis

HALISARCA DUJARDINI Johnston [1842, p. 192 ; *Bowerbank*, 1874, 3, p. 95]

Millbay Ch. (G.P.B.): on *Maia squinado*, inside Drake's Is. 28.8.07
(L.R.C.)

Order EUCERATOSA

Family **Spongiidae**

SPONGELIA SP.

Plymouth, probably Mewstone Ledge, about 1920 or 1921 (G.P.B.)

Phylum **COELENTERATA**Sub-Phylum **CNIDARIA**Class **HYDROZOA**Order **HYDROIDA***Sub-Order *Athecata*Family **Hydridae*****PROTOHYDRA LEUCKARTI** Greef [*Fowler*, 1900, p. 49]

Bere Ferrers, shallow pools of brackish water, R. Tavy, 15.6.12 (R.J.B.) :
Chelson meadow, brackish streams in mud, spring and summer, common
(M.V.L.)

Family **Clavidae****CLAVA MULTICORNIS** (Forskal) [*Allman*, 1871, p. 246]

Common in tide pools, under Hoe (G.C.B., w.G.) : common Wembury B.,
and inside Penlee (G.C.B.) : Millbrook (T.V.H.) : Cargreen on wood and
stones (E.P.)

Bearing gonophores : Feb. (R.A.T.) : Mar.-Apr. (w.G.) : Nov. (T.V.H.)

CLAVA SQUAMATA (O. F. Müller) [*Allman*, 1871, p. 243]

Fairly common between tide-marks ; under Hoe ; Drake's Is. ; Rum B. ;
etc. (E.J.A., R.A.T.) : Jennycliff B. (A.J.S.) : Barn Pool (E.T.B.) : St. Germans
R., abundant on Fucus (w.G.) : R. Tamar, on Fucus, etc., common ;
dredged (E.P.)

Breeding, Feb.-May (w.G.) : Sept. (E.T.B.)

MERONA CORNUCOPIAE (Norman) [*Hincks*, 1868, p. 11, as *Tubiclava*]

Not uncommon on shells of Aporrhais, Dentalium and Turritella,
tenanted by *Phascolion strombi* (R.A.T., S.P.) : Mewstone Gds. (w.G.,
R.A.T., S.P.) : Stoke Pt. Gds. (R.A.T., S.P.) : on the fine sand S. of Eddystone
C.E.J.A.) : Rame-Eddystone Gds. (R.A.T., S.P.) : on *Dentalium entalis* at
3 positions, 8-17 m. S.W. of Eddystone, on Pectunculus at 2 positions,
29-30 m. S.W. of Eddystone, 40-43 fms. (Crawshay, 1912, p. 323)

Breeding : May (w.G., R.A.T.) : June (w.G.)

TUBICLAVA LUCERNA Allman [1871, p. 256]

Millbay Ch., on stones (E.J.A.) : on a stone Millbay Ch., Oct. 1907
(E.T.B.)

CORDYLOPHORA LACUSTRIS Allman [1871, p. 252]

R. Tamar, Calstock viaduct and Ashburton Corner on wooden belting,
pieces of rock, below half tide-mark ; very abundant, down to within
 $\frac{1}{2}$ mile of Halton Quay ; observed above Calstock. Always in brackish
water.

Breeding : July (E.P.)

Family **Bougainvilliidae****PODOCORYNE CARNEA** M. Sars [*Allman*, 1871, p. 349]

Occasionally on old shells, 10-20 fms. (G.C.B.) : Cawsand B., small

*For convenience the Hydroids and Medusae are arranged separately (see p. 79).

colonies common on living *Nassarius reticulata* (R.A.T.): on a shell of *Nassarius reticulata* inhabited by *Eupagurus bernhardus* Duke Rk., dredged, medusae liberated, 21.8.06 (E.R.S.)

Medusae liberated in May, 1899 (E.T.B.)

HYDRACTINIA ECHINATA (Fleming) [Allman, 1871, p. 345]

Moderately common, on Buccinum and other shells inhabited by *Eupagurus bernhardus* (R.A.T., S.P.): occasionally taken on living Buccinum (R.A.T.): Cattewater (R.A.T., S.P.): Asia Sh., Jennycliff B. (R.A.T.): Cawsand B. (G.C.B., R.A.T., S.P.): Yealm R. (T.V.H., R.A.T.): Eddystone Gds. (E.J.A., S.P.): Mewstone Gds., Rame-Eddystone Gds. (R.A.T., S.P.): one colony on a young *Colus (Fusus) islandicus* 31 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 323)

Breeding: Aug. (W.G.): Nov. (S.P.)

SALCOMBE. On shells inhabited by *Eupagurus bernhardus* from the Salstone, and from the channel between Salstone and Snape Pt. (Allen and Todd, 1900, p. 185)

PERIGONIMUS REPENS (T. S. Wright) [Hincks, 1868, p. 90.] Medusa ?*Leuckartia octona*.

Drake's Is., on living *Nassarius reticulata* (T.V.H.): Cawsand B., on *Nassarius*; Cattewater, large colony on abdomen of *Carcinus* (R.A.T.): Mewstone 'Echinoderm' gd. inside Buccinum shell (E.T.B., R.A.T.): Rame-Eddystone Gds. on *Turritella* shells (G.C.B.): Eddystone Gds., on claw of *Eupagurus bernhardus* (E.J.A.): rocks beyond Yacht Club on *Laminaria* roots; a little on *Laminaria* roots from rock pool below lab., 17.8.06 (E.R.S.)

Breeding: Aug. (W.G.): medusae in April (R.A.T.): Cattewater, shrimp trawl, 9.11.20, medusae buds almost ready to be liberated (A.J.S.)

PERIGONIMUS SERPENS Allman [1871, p. 327]

3 miles S. of Mewstone, on an old rope, Oct. 1897; Eddystone Buoy, Apr. 1898, medusae buds present; buoy near Bovisand inside Breakwater, taken by hand, growing on root of *Laminaria*, medusae; colony on stem of a red seaweed, dredged near Bridge Buoy, in Sound, Nov. 1905; on *Laminaria* root, Duke Rk. gd., Nov. 1907 (E.T.B.)

BOUGAINVILLEA MUSCUS (Allman) [Hincks, 1868, p. 111]

Colony, with medusa buds, on a worm tube dredged 4½ miles S. of Rame Hd., 27.9.04 (E.T.B.)

BOUGAINVILLEA RAMOSA (van Beneden) [Allman, 1871, p. 311]

Drake's Is., at low tide (G.C.B., R.A.T.): Millbay Pit; Millbay Dock, on piles; Asia Sh. (R.A.T.): Cawsand B., on old tin can (E.T.B.): Eddystone Gds., practically confined to the fine sand ground, where it is frequently met with, generally on Polychaete tubes or on other hydroids (E.J.A.): West Channel, 29.6.06 (W.B.): Duke Rk., 5 fms.: on stones and *Laminaria* roots under lab., 20.8.06 (E.R.S.)

Medusae: Apr. (W.F.R.W.): May (E.J.A.)

DICORYNE (HETEROCORDYLE) CONYBEAREI Allman [1871, p. 307]

Abundant in the Sound on living *Nassarius reticulatus* (E.T.B., R.A.T.) Drake's Is., on *Nassarius* (T.V.H.): Cawsand B., on *Nassarius* (R.A.T., S.P.)

Eddystone Gds., with *Eupagurus* (E.J.A.): near the East Rutts, on *Buccinum* shells containing *Eupagurus bernhardus* (E.T.B.)

With gonophores: Aug., Oct. (E.T.B.)

BIMERIA (GARVEIA) NUTANS (Wright) [*Allman*, 1871, p. 295]

Rocks under Hoe (E.J.A., T.V.H., R.A.T.): on the piles on the Promenade Pier, occasionally (R.A.T.): Millbay Ch. and Pit (W.G., E.J.A., T.V.H., R.A.T.): Asia Sh. (R.A.T.)

Bearing gonophores: Feb.-Apr. (R.A.T.)

Family **Eudendriidae**

EUDENDRIUM ALBUM Nutting [1898, p. 362]

One of the most abundant Hydroids at Plymouth during the spring; on stones from Millbay Ch. often covering the stones with a dense growth of white cottony tufts (C.C.N.): Millbay Ch. (E.J.A., T.V.H., A.J.S., R.A.T., S.P.): Asia Sh., Duke Rk. (R.A.T.)

Bearing gonophores: Jan., Feb. (A.J.S.): Mar. (T.V.H.): Apr. (C.C.N.): May (R.A.T.)

EUDENDRIUM CAPILLARE Alder [*Allman*, 1871, p. 335]

Off Stoke Pt. on worm tubes and on *Nemertesia antennina* (G.C.B.): Eddystone Gds. (E.J.A.): small colonies at 9 positions 7-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 324)

EUDENDRIUM RAMEUM (Pallas) [*Hincks*, 1868, p. 80]

Eddystone, 30 fms., not common (G.C.B.)

EUDENDRIUM RAMOSUM (L.) [*Allman*, 1871, p. 332]

Not uncommon in dredgings from the Sound (R.A.T.): Reny Rks., at low tide (T.V.H.): off the Mewstone, very common (G.C.B.): Rame-Eddystone Gds. (R.A.T.): Eddystone Gds., generally growing on shells or on other hydroids, most frequent on sandy gds. (E.J.A.): Eddystone S. by W. 1 m. Rame Hd. N. by E. Otter trawl, 10.9.06, breeding (A.J.S.): several small colonies 18 miles and four at 34 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 324)

Breeding: Feb. (W.G.): Mar. (W.G., R.A.T., A.J.S.): Apr., May, Nov. (R.A.T.)

Family **Laridae**

LAR SABELLARUM Gosse [1868, p. 36]

(Medusa *Willia stellata*), Millbay Ch., on Sabellid tubes (A.J.S.): on *Potamilla torelli* (E.T.B.): off Bigbury B., 25 fms., dredge, 27.9.06, many colonies on a cluster of worm tubes; medusa buds present (E.T.B.): on *Potamilla* tubes, Mewstone Ledge, dredge, 2.6.08, with medusae attached (A.J.S.): colony on *Sabella* tube, Mewstone Ledge, Oct. 1913 (E.T.B.)

Family **Corynidae**

CORYNE MUSCOIDES (L.) (= *C. vaginata* Hincks) [*Allman*, 1871, p. 268]

Under Hoe, fairly abundant (E.J.A.): common in tide pools; Rum B.; Cawsand B. (R.A.T.); Drake's I. (G.C.B., T.V.H.): inside Bovisand Pier (W.G.): Bovisand B. (G.C.B.): Wembury B. (G.C.B., E.J.A.)

Breeding : Apr. (R.A.T.) : May-Aug. (G.C.B.) : probably this species extruding eggs (which segmented) forming blastostyles, below laboratory, 15.5.24 (J.H.O.)

SYNCORYNE EXIMIA (Allman) [1871, p. 282]

(Medusa *Sarsia eximia*). Single colony on piece of rope, 1 m. S. of Mewstone, May 1889 (G.C.B.) : Penlee Pt., Sept., 1897 ; a great mass on a fisherman's cork and rope, found floating off the Mewstone ; colonies loaded with medusa-buds, Oct. 1906 ; hydroid attached to a cork and a piece of rope, Mewstone E. $\frac{1}{2}$ N. $2\frac{1}{2}$ m., surface, Medusa-buds present, 4.10.06 (E.T.B.)

SYNCORYNE (SP. ?) **GRAVATA** (Wright) [*Hincks*, 1868, p. 53]

Rocks under Hoe, occasionally ; Mt. Edgumbe (W.G., R.A.T.) : Drake's I. ; Devil's Pt. ; Garden Battery (E.J.A.)

With attached medusae : Mar. (W.G., R.A.T.) : Apr. (E.J.A.)

GEMMARIA IMPLEXA (Alder) [*Allman*, 1871, p. 290]

(Medusa *Zanclea implexa*). A single colony on an encrusting Polyzoan dredged from rocky ground between Penlee Pt. and Rame Hd., Aug. 1899 (E.T.B.)

Medusae liberated : Aug. (E.T.B.)

Family **Pennariidae**

STAUROIDIUM PRODUCTUM Wright [*Allman*, 1871, p. 371]

A small colony in a Laboratory tank, June, 1899 (E.T.B.)

Family **Myriotheilidae**

MYRIOTHELA COCKSI (Vigurs) [*Hincks*, 1868, p. 77]

Common, under stones, at low tide (G.C.B.) : Drake's I. (G.C.B., R.A.T., S.P.) : Millbay Ch. (E.J.A., A.J.S., T.V.H., R.A.T., S.P.) : shore below Lab. ; Mt. Edgumbe (E.J.A.) : Rame Hd. (T.V.H.) : Asia Sh., Reny Rks. (R.A.T.) : Picklecombe, Bovisand B., Mewstone (G.C.B.) : Rum B. (A.J.S.) : Wembury B. (G.C.B., T.V.H., A.J.S., R.A.T.) : the Bridge, Drake's I., 1.11.09, ripe gonophores and actinulae abundant (A.J.S.)

Gonophores ripe : Jan., Mar., Apr. (R.A.T.) : May-Aug. (G.C.B.)

SALCOMBE. Castle Rks., Salcombe Estuary, low tide, 12.4.29 (G.M.S.)

Family **Tubulariidae**

TUBULARIA INDIVISA L. [*Allman*, 1871, p. 400]

Rocks under Hoe (E.J.A.) : Drake's I., in low tide rock-pools (G.C.B.) : Millbay Ch. and Pit, moderately common (W.G., E.J.A., R.A.T., S.P.) : Asia Sh. (E.J.A., R.A.T.) : Mt. Edgumbe (E.J.A.) : Duke Rk. (R.A.T.) : Eddystone Rk. (E.J.A.)

Breeding : Feb.-Apr. (W.G., R.A.T.) : May (R.A.T.)

TUBULARIA CROCEA (L. Agassiz) [*Allman*, 1871, p. 416]

On the stern of a sailing ship from S. America anchored in Plymouth, Sept. 1895 ; on bottom of M.B.A. sailing boat, Oct. 1907 ; on a mooring buoy off Promenade Pier, with gonophores, Oct. 1907 (E.T.B.)

TUBULARIA LARYNX Ellis and Solander [*Allman*, 1871, p. 406]

Growing profusely on the Duke Rk. Buoy, and on other buoys in the East Ch., 1889 (G.C.B.): Millbay Ch. (W.G., R.A.T.): not taken in 1895 (E.J.A.)

Breeding: Apr.-May (W.G., R.A.T.): Dec. (S.P.)

ECTOPLEURA DUMORTIERI (van Beneden) [*Allman*, 1871, p. 424]

4½ m. S. of Rame Hd. Dredge, 27.9.04. One specimen attached to an old Halecium stem. Medusae liberated in a bell jar (E.T.B.)

HYBOCODON PROLIFER L. Agassiz [*Allman*, 1871, p. 422]

(Medusa *H. prolifer*) Colonies, with medusa buds, embedded in the sponge *Desmacidon fruticosum* dredged E. of Mewstone Buoy, March 1914 (E.T.B.): 4 or 5 polyps without gonophores on *Desmacidon fruticosum*, Rame bearing E. about 8 m., Otter trawl, 10/11.6.14: one polyp on *Desmacidon fruticosum*, Looe-Eddystone, Agassiz trawl, 21.8.14, not breeding (A.J.S.)

Family **Corymorphidae**CORYMORPHA NUTANS M. Sars [*Allman*, 1871, p. 388]

(Medusa *Steenstrupia nutans*). The hydroid generation only taken very occasionally, although its medusa is common (E.J.A.): off Ft. Tregantle, 5 specimens in about 3 fm., May 1887 (W.H.): 3 specimens, May 1895 (E.J.A.): sought for unsuccessfully, 1889-90 (G.C.B.): two specimens on patch of sand in East Ch., May 1895 (E.J.A.): Queen's Gd., single spec., June 1904 (S.P.): Cawsand B., single specimen, June 1904 (S.P.): Whitsand B. 4½-6 fms., inner fishing gd. (east end), grab, about 4 specimens, gonophores very few if any, 7.6.22, brought in by E.F. (A.J.S.)

Attached medusae in May.

CORYMORPHA NANA Alder [*Hincks*, 1868, p. 130]

Between the stalks of *Eudendrium album*, Plymouth, 1912, once (Stechow, 1912, p. 404)

Sub-Order *Thecata*Family **Haleciidae**HALECIUM BEANI (Johnston) [*Hincks*, 1868, p. 224]

Not uncommon in Sound, on stones and shells, and outside in 15-30 fms., on shells, other hydroids, and on Chaetopterus tubes; not so abundant as *H. halecinum* (R.A.T., S.P.): Eddystone Gds. (E.J.A.)

Breeding: with gonophores: Jan. (W.G.): Mar., Apr. (R.A.T.): May (S.P.): July (W.G.): Oct. (R.A.T.): Duke Rk., 29.8.06, dredge, branches with male and female capsules (A.B., L.R.C.): 3 small colonies, one large with gonangia, 7-28 m. S.W. of Eddystone, 40-55 fms. (Crawshay, 1912, p. 326)

SALCOMBE. Dredged between Salstone and Snape's Pt. (Allen and Todd, 1900, p. 185)

HALECIUM HALECINUM (L.) [*Hincks*, 1868, p. 221]

Not uncommon in Sound on stones and shells; common outside, 15-30 fms., on Chaetopterus tubes, stones, and shells (R.A.T., S.P.): Eddystone

Gds., abundant on certain grounds, and generally on Chaetopterus tubes (E.J.A., S.P.): Rame-Eddystone Gds., Mewstone Gds. (R.A.T., S.P.): Stoke Pt. Gds.; Looe-Eddystone Gds. (S.P.): at several positions 8-34 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 326)

Breeding: Jan. (W.G.): Feb.-June (R.A.T.): July (W.G.)

HALECIUM LABROSUM Alder [*Hincks*, 1868, p. 225]

Eddystone Gds. (E.T.B.): one small colony, 17 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 327)

HALECIUM (HALOIKEMA) LANKESTERI Bourne [1890, p. 395]

Duke Rk., on flat stones (G.C.B., E.T.B.): S. end of Jennycliff B. (G.C.B., W.G.)

HALECIUM TENELLUM *Hincks* [1868, p. 226]

Plymouth 18 fms. (C.C.N.): off Stoke pt., Nov. 1913 (E.T.B.): at 4 positions, 30-48 m. S.W. of Eddystone, 47-51 fms. on Antennularia, Cellaria, etc. (Crawshay, 1912, p. 327)

Breeding: Apr. (C.C.N.)

HYDRANTHEA MARGARICA (*Hincks*) [1868, p. 100]

Colonies with gonophores, on broken whelk shells; dredged off Stoke Pt., 23.10.13; on a stone dredged off Stoke Pt., 24.2.14 (E.T.B.)

Family Campanulariidae

CAMPANULARIA VOLUBILIS (L.) [*Hincks*, 1868, p. 160]

Duke Rk. on shells (G.C.B.): N. of Breakwater, 5½ fms., plentiful (W.H.)

CAMPANULARIA VERTICILLATA (L.) [*Hincks*, 1868, p. 167]

Mewstone Gds.; Eddystone Gds., occasionally on the fine sand areas (E.J.A.): one colony, 8 m. S.W. of Eddystone, 40 fms. on Cellaria (Crawshay, 1912)

CAMPANULARIA HINCKSI Alder [*Hincks*, 1868, p. 162]

Common in 10-30 fms. on shells, hydroids, Cellaria, etc.; Rame-Eddystone Gds.; Mewstone Gds. (R.A.T.): Eddystone Gds. (E.J.A.): at several positions 7-48 m. S.W. of Eddystone, 40-51 fms., on hydroids, Cellaria, dead shells and one on Scalpellum; a single colony with gonangia (Crawshay, 1912, p. 325)

ORTHOPYXIS (CAMPANULARIA) CALICULATA (*Hincks*) [1868, p. 164]

Medusa *Agastrea caliculata*.

On red seaweed, near Rame Hd., 19.10.06 (E.T.B.)

CLYTIA JOHNSTONI (Alder [*Hincks*, 1868, p. 143] (Medusa *Phialidium hemisphaericum*).

Ubiquitous on algae and on other hydroids (G.C.B.): L.W. to 35 fms. (R.A.T., S.P.): 20 m. S.W. of Eddystone, 42 fms. on *Inachus dorsettensis* (Crawshay, 1912, p. 325)

Breeding: Mar. (R.A.T.): Apr. (A.J.S.): July (E.T.B.). Medusae produced in Laboratory tanks, May 1895 (C.C.N.). Medusae bearing gonothecae, July (E.T.B.)

SALCOMBE. Abundant on shells and weeds dredged in all parts of the channel from the Salstone to the mouth of Salcombe Harbour (Allen and Todd, 1900, p. 185)

OBELIA DICHOTOMA (L.) [Hincks, 1868, p. 156]

Rame Hd. (W.H.) : Rame-Eddystone Gds., on *Nemertesia* (*Antennularia*) *antennina* and *Sertularella gayi* (R.A.T.) : Whitsand B., on worm-tubes (G.C.B.) : Eddystone Gds., on the fine sand area, growing on *Chlamys* (*Aequipecten*) *opercularis* shells, *Hydrallmania*, *Bougainvillia*, *Sertularia argentea* and *Cellaria* (E.J.A.) : rock at low tide under Rame Church, 19.9.06, ripe gonads which gave off thousands of medusae the same evening (A.J.S.) : Queen's Gds. (5 fms.) on *Nemertesia* (*Antennularia*) *antennina* ; Millbay Ch. (14-23 fms.), a very small quantity on a piece of *Alcyonidium*, 7.8.06 ; Duke Rk. (5 fms.) two colonies with ripe gonophores, 16.8.06 ; a single colony in shrimp trawl off North side of Drake's Is. (3 fms.), 24.8.06 (E.R.S.)

OBELIA GENICULATA (L.) [Hincks, 1868, p. 149]

Very common, generally on *Laminaria* (G.C.B., W.H., R.A.T., S.P.) : Millbay Dock, on the piles (R.A.T.) : up to Cargreen Hard, R. Tamar ; shore above Ince Castle, June-Oct. 1928, hand and dredge ; less common than *O. gelatinosa* (E.P.)

Bearing gonophores : Mar.-Sept. (W.G.)

SALCOMBE. Dredged in Salcombe Harbour. A small colony growing on *Gibbula magus* shell (Allen and Todd, 1900, p. 185)

OBELIA LONGISSIMA (Pallas) [Hincks, 1868, p. 154]

From trawl refuse from outside Eddystone (G.C.B.) : S. of Eddystone (E.J.A.) : a single colony dredged near Drake's I. Buoy, 5 fms. 17.8.06 (E.R.S.)

GONOTHYRAEA LOVENI (Allman) [Hincks, 1868, p. 181]

Millbay Ch. ; Hamoaze (E.J.A.) : Millbay Dock, on piles ; on hulks in Cattewater ; between tide-marks Turnchapel, Rum B., and Yealm R. ; Asia Sh. (R.A.T.) : Mt. Edgcumbe, at low tide (C.C.N., E.J.A.) : Barn Pool on *Fucus* ; Saltash Pier (E.T.B.) : beach above Ince Castle on *Fucus vesiculosus* ; edge of mud bank above Saltash Br. near wall, R. Tamar 1.8.28, 19.9.28 (E.P.)

Sometimes grows in great profusion in the Laboratory tanks (E.J.A.)

Breeding : Mar. (R.A.T.) : Apr. (W.G., R.A.T.) : Sept. (E.T.B.) : Oct. (W.G., E.T.B.) : Nov. (W.G.)

GONOTHYRAEA GRACILIS (M. Sars) [Hincks, 1868, p. 183]

At 7 positions 20-46 m. S.W. of Eddystone, 42-50 fms., on *Cellaria* ; gonangia in those from 3 positions (Crawshay, 1912, p. 325)

LAOMEDEA (CAMPANULARIA) ANGULATA (Hincks) [1868, p. 170]

Colony with gonophores, on floating *zostera* 3 m. S.S.W. of Mewstone, June 1898 (E.T.B.) : Bovisand B., at low tide (G.C.B.) : Jennycliff B. (3-5 fms.) on *Zostera marina*, shrimp trawl, 16.8.06 ; on a stone in a rock pool under the Laboratory, 20.8.06 ; Cawsand B. (5 fms.) on *Zostera marina* in shrimp trawl, 22.8.06 (E.R.S.)

LAOMEDEA (CAMPANULARIA) NEGLECTA Alder [*Hincks*, 1868, p. 171]

On stems of *Tubularia indivisa*, Millbay (C.C.N.)

LAOMEDEA (OBELIA, OBELARIA) GELATINOSA (Pallas) [*Hincks*, 1868, p. 151]

Lynher R., large colonies up to 13 inches, in deep water under Sheviok Wood, July 1898 (E.W.L.H., W.I.B., E.T.B.): Bovisand B. (T.V.H.): R. Tamar, widely distributed on hard substratum up to North Hove; R. Lynher, up to mud-flats above St. Germans Br., June-Oct. 1928; hand and dredge (E.P.)

LAOMEDEA (CAMPANULARIA) FLEXUOSA *Hincks* [1868, p. 168]

Very common on weeds and in rock-pools below the Hoe (G.C.B.): common on the shore between tide-marks; on hulks and buoys in Sound and Cattewater; Phoenix Wharf and Millbay Dock, on piles; Millbay Pit (R.A.T.): Mt. Edgcumbe (E.J.A.): Saltash Pier, very abundant, Oct. 1897 (E.T.B.): at 12 positions 20-48 m. S.W. of Eddystone, 40-51 fms., chiefly on Cellaria, also on other hydroids and one on a shell fragment (Crawshay, 1912, p. 325)

Family Campanulinidae

CAMPANULINA REPENS Allman [*Hincks*, 1868, p. 189] Medusa *Phialella cymbaloidea*. Winter Sh., abundant on Delesseria; between Penlee Pt. and Rame Hd., on algae and stems of *Tubularia*; Mewstone Gds., many colonies on a piece of rope (E.T.B.)

Gonophores: July (E.T.B.)

OPERCULARELLA HISPIDA Nutting [1898, p. 363]

The type specimen from Plymouth, on a stone associated with *Clava multicornis* (C.C.N.)

OPERCULARELLA LACERTA (Johnston) [*Hincks*, 1868, p. 194]

Millbay Dock, on young stems of *Tubularia indivisa* and on Eudendrium (C.C.N.): at 10 positions 7-46 m. S.W. of Eddystone, 40-49 fms. or over, on hydroids and Cellaria, one specimen with gonangium (Crawshay, 1912, p. 326): colonies with gonophores, on *Obelia longissima* from bottom of coal hulk, Cattewater, April 1899; on Sertularia dredged from rocky ground, outside Breakwater, Nov. 1913 (E.T.B.): small colonies on Alcyonidium and bryozoa, dredged from Millbay Ch. (14-23 fms.), 13.8.06 (E.R.S.)

CUSPIDELLA COSTATA *Hincks* [1868, p. 210]

Inner Eddystone trawling gds. (E.J.A.): growing on weed, trawl refuse (G.C.B.): at 4 positions, 7-39 m. S.W. of Eddystone, 40-49 fms. or over (Crawshay, 1912, p. 326)

CUSPIDELLA GRANDIS *Hincks* [1868, p. 210]

On stems of *Halecium tenellum* (C.C.N.)

CALYCELLA SYRINGA (L.) [*Hincks*, 1868, p. 206]

Abundant on roots of Laminaria (G.C.B.): abundant on young stems of *Tubularia indivisa* (C.C.N.): Penlee Pt.; Rame Hd. (G.C.B.): Saltash Pier, on Sertularia (E.T.B.): on *Lafoea dumosa* and *Halecium beani* dredged from Duke Rk. (5 fms.), 16.8.06 (E.R.S.)

STEGOPOMA (CALYCELLA) FASTIGIATA (Alder) [Hincks, 1868, p. 208]

Eddystone Gds. (E.J.A.) : at 2 positions 17.29 m. S.W. of Eddystone 43-44 fms., on Porella and Cellaria (Crawshay, 1912, p. 326).

Family Trichydridae**TRICHYDRA PUDICA (Wright) [Hincks, 1868, p. 216]**

Eddystone Gds., fine gravel (E.T.B. and E.J.A.) : Eddystone Buoy (E.T.B.)

Family Lafoeidae**LAFOEA DUMOSA (Fleming) [Hincks, 1868, p. 200] (Gonosome *Coppinia arcta*)**

Common in 15-35 fms., on shells, worm tubes, other hydroids, etc. (R.A.T., S.P.) : Eddystone Gds., both the creeping and branched varieties, the latter especially upon the fine sand areas, where it is attached to shells on polychaete tubes (E.J.A.) : 48 m. S.W. of Eddystone, 40-52 fms. (Crawshay, 1912, p. 326)

***Coppinia arcta*, the gonosome [Hincks, 1868, p. 219]**

Eddystone Gds., abundant on the fine sand gds. (E.J.A.) : Mewstone Gds. (A.J.S.) : Rame-Eddystone Gds. ; Mewstone Ledge, very occasionally (R.A.T.)

The neomenian *Nematonemia banyulensis* is frequently associated with the erect form of *L. dumosa* (E.J.A., S.P.) : Duke Rk. (5 fms.), 16.8.06 (E.R.S.)

LAFOEA FRUTICOSA (M. Sars) [Hincks, 1868, p. 202]

Not uncommon, 15-30 fms. (R.A.T., S.P.) : Rame-Eddystone Gds. (E.T.B. and R.A.T., S.P.) : Eddystone Gds. (E.J.A.) : Stoke Pt. Gds. (G.C.B., S.P.) : at 11 stations, 8-46 m. S.W. of Eddystone, 40-50 fms., mostly very small colonies (Crawshay, 1912, p. 326)

Family Sertulariidae**DIPHASIA ALATA Hincks [1868, p. 258]**

Mewstone Ledge, dredged, 16.6.08, with gonophores (A.J.S.) : one well-grown colony, 48 m. S.W. of Eddystone, 51 fms. (Crawshay, 1912, p. 328) : Looe-Eddystone Gds., 7 m. E. of Rame Hd., 27 fms., one colony, 1913 (E.T.B.)

DIPHASIA ATTENUATA (Hincks) [1868, p. 247]

On the fine sand of the "outer" trawling gds. (E.J.A.) : a little from Queen's Gds. (5 fms.), 7.8.06 ; a little from Asia Sh., 23.8.06 (E.R.S.) ; from 10 positions 20-48 m. S.W. of Eddystone, 43-51 fms., chiefly on Cellaria, occasionally on other hydroids, once on a Pallasia tube, once with a few male gonangia, once with numerous female gonangia (Crawshay, 1912, p. 328)

DIPHASIA PINASTER (Ellis & Solander) [Hincks, 1868, p. 252]

Very common in trawl refuse, S. of Eddystone (G.C.B.) : at 11 positions, 8-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 328)

DIPHASIA PINNATA (Pallas) [*Hincks*, 1868, p. 255]

5 m. S. of Eddystone (G.C.B.) : one or two specimens each from 7 positions 20-48 m. S.W. of Eddystone, 43-51 fms. or over, female gonangia on 3 (Crawshay, 1912, p. 328)

Breeding : Apr. (w.G.) : gonophores in May (G.C.B.)

DIPHASIA ROSACEA (L.) [*Hincks*, 1868, p. 245]

Millbay Ch., common on stones (w.G.) : Millbay Dock, on the piles (w.G., R.A.T.) : 2 m. S. of the Mewstone, small colony on piece of rope (E.T.B.) : Eddystone Gds., occasionally met with (E.J.A.)

Breeding : Mar. (w.G., R.A.T.) : Apr. (w.G.)

DIPHASIA TAMARISCA (L.) [*Hincks*, 1868, p. 254]

Eddystone Gds. (E.J.A.)

DYNAMENA (SERTULARIA) PUMILA (L.) [*Hincks*, 1868, p. 260]

Abundant on rocks and weeds, especially *Fucus*, between tide-marks (G.C.B., R.A.T., S.P.) : buoy near Breakwater (R.A.T.) : on *Fucus vesiculosus* etc., to Neille Pt., R. Tamar ; to beach above Ince Castle, R. Lynher ; hand ; June-Oct. 1928 (E.P.)

SERTULARELLA GAYI (Lamouroux) [*Hincks*, 1868, p. 237]

Not uncommon in Sound (R.A.T., S.P.) : Eddystone Gds., one of the most characteristic features of the fauna of the fine sand grounds (E.J.A., S.P.) : Rame-Eddystone Gds., Mewstone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. ; Looe-Eddystone Gds. (S.P.) : frequent S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 327)

SALCOMBE. Dredged in the " Bag " off Snape's Pt., a clean shell-gravel ground (Allen and Todd, 1900, p. 185)

SERTULARELLA POLYZONIAS (L.) [*Hincks*, 1868, p. 235]

Occasionally in Sound (R.A.T., S.P.) : Eddystone Gds., with *S. gayi*, but much less common (E.J.A., S.P.) : Mewstone Gds. ; Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (S.P.) : small colonies at 3 positions S.W. of Eddystone, 42-50 fms. (Crawshay, 1912, p. 327)

Breeding : Aug. (S.P.) : Sept. (R.A.T.)

SALCOMBE. A few pieces only dredged in the channel between Salstone and the mouth of Salcombe Harbour (Allen and Todd, 1900, p. 185)

SERTULARELLA RUGOSA Gray [*Hincks*, 1868, p. 241]

Sound, growing on *Abietaria abietina* ; off Mewstone, July 1905 (G.E.B.)

ABIETINARIA (SERTULARIA) ABIETINA (L.) [*Hincks*, 1868, p. 266]

Common in trawl refuse (G.C.B.) : abundant in depths below 30 fms. on the " outer " trawling gds. (E.J.A.) : Millbay Ch., occasionally (R.A.T., S.P.) : at 14 positions, 21-48 m. S.W. of Eddystone, on dead *Pecten* shells, 42-52 fms. or over (Crawshay, 1912, p. 329)

HYDRALLMANIA FALCATA (L.) [*Hincks*, 1868, p. 273]

Not uncommon in Sound, 15-30 fms., on stony gd., and on sand with stones and shells ; always attached to stones or shells (R.A.T.) : abundant in Hamoaze (E.J.A.) : Millbay Pit ; Duke Rk. ; Mewstone Gds. ; Cawsand

B. ; Rame-Eddystone Gds. (R.A.T.) : Eddystone Gds., occasional specimens (E.J.A.) : generally distributed 8-48 m. S.W. of Eddystone, 40-51 fms., commonly attached to shells of *Pecten*, once on *Porella*, very commonly good-sized colonies on stones (Crawshay, 1912, p. 329) : Rame-Eddystone, otter trawl, 16.12.13, many colonies with ripe gonophores (A.J.S.)

Breeding : Jan. (W.G.) : Feb.-Apr. (R.A.T.)

SERTULARIA CUPRESSINA (L.) [Hincks, 1868, p. 270, including *S. argentea*]

Common in trawl refuse from Eddystone (G.C.B.) : Queen's Gd. ; Asia Sh. ; Millbay Ch. and Pit (R.A.T., S.P.) : Eddystone Gds., not infrequent on *Chlamys (Aequipecten) opercularis* shells, and on other hydroids (E.J.A.) : Yealm R. (R.A.T.) : Stoke Pt. Gds. (R.A.T., S.P.) : Saltash Pier (E.T.B.) : at 10 positions 8-48 m. S.W. of Eddystone, on shells of *Chlamys (Aequipecten) opercularis*, *P. maximus*, *Lutraria*, *Modiolus*, etc., mostly small or young colonies, 40-51 fms. (Crawshay, 1912, p. 329)

Gonophores ripe : Mar. (R.A.T.)

SALCOMBE. Common in dredgings from the Channel West of the Salstone to the mouth of Salcombe Harbour (Allen and Todd, 1900, p. 185)

SERTULARIA OPERCULATA L. [Hincks, 1868, p. 263]

Wembury B. ; Eddystone Rk., abundant Apr. 1898 ; Eddystone Buoy (E.T.B.)

THUJARIA ARTICULATA (Pallas) [Hincks, 1868, p. 277]

Wembury B., stones and shells off Mewstone (G.C.B.) : Mewstone Ledge (R.A.T.) : a fragment 17 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 329) : Mewstone Ledge, Oct. 1913 (E.T.B.)

Family Plumulariidae

KIRCHENPAUERIA (PLUMULARIA) PINNATA (L.) = *P. echinulata* Lam. = *P. similis* Hincks [1868, p. 295]

By far the most abundant plumularian at Plymouth (C.C.N.) : Millbay Ch. (E.J.A., R.A.T., S.P.) : Millbay Dock, on piles ; Asia Sh. ; Rum B. occasionally (R.A.T.) : common ; Duke Rk. ; Barn Pool ; off Mewstone (G.C.B.) : Rame-Eddystone Gds. (E.T.B. and R.A.T., S.P.) : Eddystone Gds., generally distributed, particularly on the gravel W. of Eddystone, where it is usually attached to *Chaetopterus* tubes or to other hydroids (E.J.A.) : Yealm R. (E.J.A., R.A.T.) : (Also as *P. similis* common ; rocks below Lab. ; Jennycliff B. (G.C.B.) : under Hoe ; Bovisand B. ; Yealm R. (T.V.H.) : Church Reef, Wembury B., very occasionally ; Millbay Ch., occasional specimens (R.A.T.)) : large quantities in rock pools beyond yacht club, with gonophores ; large quantities with gonophores in rock pools under Lab. ; a little with gonophores from rock pools, Rum B., 20/22.8.06 (E.R.S.) : small colonies at 8 positions 17-18 m. S.W. of Eddystone, 40-53 fms., on a tube of *Pallasia*, on *Chlamys (Aequipecten) opercularis* and on *Porella*, on *Abietinaria (Sertularia) abietina*, on *Macropodia*, *Diphasia*, *Pisa*, *Cellaria*, etc. *Gonangia* on 3 (Crawshay, 1912, p. 330)

ANTENNELLA SECUNDARIA (Gmelin) [Hincks, 1868, p. 301] (= *P. catharina* "stemless variety" Hincks)

Eddystone Gds., on the gravels, on Chaetopterus tubes (as Hincks' "green variety") (E.J.A.): at 9 positions 7-48 m. S.W. of Eddystone, 40-51 fms., bearing gonangia at 3 positions (Crawshay, 1912, p. 330)

MONOTHECA (PLUMULARIA) OBLIQUA (Johnston) [Hincks, 1868, p. 304]

Duke Rk., on red seaweed, dredge, 29.10.06; on stones, Mewstone Ledge, Nov. 1907; outside Breakwater, Nov. 1913; Duke Rk., Feb. 1914 (E.T.B.): on Laminaria, 7.4.23 (E.R.G.)

PLUMULARIA ALLENI Nutting [1898, p. 364]

Growing on *Nemertesia* (*Antennularia*) *ramosa* (C.C.N.)

Bearing gonophores: Apr. or May (C.C.N.)

PLUMULARIA SETACEA (Ellis and Solander) [Hincks, 1868, p. 296]

Common in Sound; Hincks' branched variety is very common, generally on *Halichondria panicea* (G.C.B.): Millbay Ch. and Pit, not uncommon; Millbay Dock, on piles; Tinside, occasionally; Asia Sh., occasionally; Rame-Eddystone Gds., on Chaetopterus tubes (R.A.T.): Eddystone Gds., generally on other hydroids or on polychaete tubes (E.J.A.): at 4 positions 8-46 m. S.W. of Eddystone, 40-50 fms., one with gonangium (Crawshay, 1912, p. 331)

Breeding: Feb.-June (w.G.)

SALCOMBE. Abundant, growing on *Asciidiella* from the channel W. of the Salstone; several colonies dredged between Salstone and Snape's Pt., and one or two small ones from Salcombe Harbour (Allen and Todd, 1900, p. 185)

PLUMULARIA HALECIOIDES Alder [Hincks, 1868, p. 306]

Parasitic on *P. setacea* and on *Nemertesia* (*Antennularia*) (C.C.N.)

PLUMULARIA CATHARINA Johnston [Hincks, 1868, p. 299]

Not uncommon; Duke Rk.; Winter Sh.; off Stoke Pt. (G.C.B.): Queen's Gd., occasionally (T.V.H., R.A.T., S.P.): Eddystone Gds., the most abundant species on both the fine sand grounds, on other hydroids and on the gravels (E.J.A.): Rame-Eddystone Gds., on Chaetopterus and Terebellid tubes, Cellaria, *Antennularia*, *Asciidiella scabra*, etc. (R.A.T.): a little, Millbay Ch., 17.8.06 (E.R.S.): at 15 positions, 8-48 m. S.W. of Eddystone, 40-51 fms., bearing gonophores at one position (Crawshay, 1912, p. 330)

With gonophores: Apr.-May (R.A.T.): Aug. (E.J.A.)

PLUMULARIA DIAPHANA (Heller) [1868, p. 42]

A large quantity on a stone dredged from Asia Sh. 3-5 fms., with gonophores 20.8.26 (E.R.S.)

POLYPLUMULARIA FRUTESCENS (Ellis and Solander) [Hincks, 1868, p. 307]

Eddystone Gds., single colony on shell, *Pecten maximus* (E.J.A.): Wembury B. (G.C.B.): Stoke Pt. (S.P.): a fragment 30 m. S.W. of Eddystone, 43 fms., on Macropodia (Crawshay, 1912, p. 330).

Colonies with gonophores, Mewstone Ledge, Oct. 1913 (E.T.B.)

POLYPLUMARIA FLABELLATA G. O. Sars [1873, p. 101]

One small colony 34 m. and one large colony 48 m. S.W. of Eddystone, 49-51 fms. (Crawshay, 1912, p. 331) : Rame Hd. bearing N.N.E. 1 m. dredge, 21.4.14, 2 specimens without gonads. (A.J.S.)

NEMERTESIA (ANTENNULLARIA) ANTENNINA (L.) [Hincks, 1868, p. 280]

Not uncommon in Sound ; common outside, 15-30 fms., especially on medium gravel and muddy sand (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : Cawsand B. ; Rame-Eddystone Gds. ; Mewstone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. ; Looe-Eddystone Gds. (S.P.) : at 25 positions 7-48 m. S.W. of Eddystone, growing on shells and stones, at 2 positions, one colony bearing gonophores, 40-51 fms. (Crawshay, 1912, p. 329) : new growths on old stock, Millbay Pit, 15.1.12, dredge, with *N. ramosa* (A.J.S.)

NEMERTESIA (ANTENNULLARIA) RAMOSA (Lamouroux) [Hincks, 1868, p. 282]

With *N. antennina* but less abundant (E.J.A., R.A.T., S.P.) : at 8 positions 8-40 m. S.W. of Eddystone, 40-50 fms., not numerous (Crawshay, 1912, p. 330) : new growth of good small colonies with *N. antennina*, Millbay Pit, 15.1.12 (A.J.S.)

Breeding : Apr. (R.A.T.) : May (W.G., R.A.T., S.P.)

HALICORNARIA (AGLAOPHENIA) PENNATULA (Ellis and Solander) [1786, p. 56]

Colony without gonophores, the Sound, Feb. 1914 (E.T.B.)

THECOCARPUS (AGLAOPHENIA) MYRIOPHYLLUM (L.) [Hincks, 1868, p. 290]

Moderately common, 15-30 fms., on fine sand and sand with gravel (R.A.T., S.P.) : Eddystone Gds. (E.J.A., R.A.T., G.C.B., S.P.) : Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (S.P.) : 2-4 miles S. of Mewstone, 6.9.06, gonothecae on four branches (A.B.) : at 12 positions 17-40 m. S.W. of Eddystone, 40-50 fms., one colony with gonangia (Crawshay, 1912, p. 330)

Breeding : Apr.-June (R.A.T.) : Aug. (W.G.)

The Neomenian *Proneomenia aglaopheniae* is very commonly met with twined round the base of the stem of this form (E.J.A., R.A.T., S.P.)

AGLAOPHENIA PLUMA (L.) [Hincks, 1868, p. 286]

Common on the fronds of *Halidrys siliquosa* ; Bovisand B. ; off Mewstone (G.C.B.) : Rame-Eddystone Gds. (R.A.T.) : Yealm R. (T.V.H., A.J.S.) : Penlee-Rame Gds. ; N. of Mewstone (E.J.A.) : Millbay Ch. ; Queen's Gd. ; Wembury B. ; occasional specimens (E.J.A., R.A.T.) : a little with *corbulae* from Asia Sh., 23.8.06 (E.R.S.)

Breeding : May (E.J.A., R.A.T.) : Aug. (W.G.)

AGLAOPHENIA PLUMA (L.) var. HELLERI Marktanner [Nutting, 1896, p. 153]

Eddystone Rk. (C.C.N., E.T.B.)

AGLAOPHENIA TUBULIFERA (Hincks) [1868, p. 288]

Not uncommon, Aug.-Oct. ; Wembury B. ; off the Mewstone (G.C.B.) :

Eddystone Gds. (E.J.A., E.T.B.) : Rame-Eddystone Gds. ; Mewstone Ledge (R.A.T.) : Bovisand B. (G.C.B.) : 40 m. S.W. of Eddystone, several colonies on *Diphasia pinnata*, one with gonangia, 49 fms. (Crawshay, 1912, p. 330)

Breeding : Sept. (R.A.T.) : Oct. (W.G.)

SALCOMBE. Small colony dredged in the channel west of Salstone (Allen and Todd, 1900, p. 185)

Class **HYDROZOA**

Order HYDROMEDUSAE*

Sub-Order *Anthomedusae*

Family **Sarsiidae**

SARSIA EXIMIA Allman [Hydroid, *Syncoryne eximia*] [Allman, 1871, p. 282]

Plymouth, some specimens in July (W.G.) : once in Sept. (M.V.L.)

SARSIA PROLIFERA Forbes [1848, p. 59]

Plymouth (W.G.) : single specimen Aug. 1895 ; Whitsand B., about 100 specimens, May 1896, May 1898, few ; July 1899, very abundant off Rame Hd. (E.T.B.) : Jan. to Oct., 1919, 1922, occasionally in Sound (M.V.L.)

SARSIA TUBULOSA (M. Sars) [Forbes, 1848, p. 55]

Plymouth, rare (W.G.) : very abundant about Saltash Bridge, Apr. 1898 ; occasionally taken in the Sound during May (E.T.B.) : Medusae appeared in a Laboratory Tank April 1898, and were reared to the adult stage (E.T.B.) : in tow nets in Sound, April, May, July, Sept. (M.V.L., G.E.W.)

PURENA (SARSIA) STRANGULATA (Allman) = *Dipurena ophiogaster* Haeckel [Allman, 1871, p. 45 and 46, fig.]

Single specimen July 1897 (E.T.B.)

PURENA (SARSIA) GEMMIFERA Forbes [1848, p. 57]

Plymouth, Sept. 1897 ; May 1898 ; 1899, fairly common in June, few in July ; Cawsand B., a young stage with medusa buds, Sept. 1897 (E.T.B.) : in Sound beyond Breakwater, July 1925, in numbers (M.V.L.)

DIPURENA (SLABBERIA) HALTERATA (Forbes) [1848, p. 53]

Plymouth, Sept. 1893 ; July 1899, two early stages (E.T.B.)

EUCODONIUM BROWNEI Hartlaub [1907, p. 71] = *Dipurena* sp. Browne [1896, p. 473]

Two specimens from Plymouth, budding, Sept. 1895 (E.T.B.)

ECTOPLEURA DUMORTIERI (van Beneden) (Hydroid *E. dumortieri*) [Hincks, 1868, p. 124]

The Sound, a single specimen of an early stage ; 3.10.05 one ; 26.10.06 one ; 24.10.07 one (E.T.B.)

ZANCLEA IMPLEXA (Alder) (Hydroid, *Gemmaria implexa*) [Allman, 1871, p. 290]

Plymouth, 2 specimens, Aug. 1895 ; Cawsand B., single specimen, of an early stage, Sept. 1897 (E.T.B.)

*For convenience the Hydroids and Medusae are arranged separately (see p. 66).

Family **Corymorphidae**

STEENSTRUPIA (CORYMORPHA) NUTANS (M. Sars) (Hydroid, *Corymorpha nutans*) [Browne, 1896, p. 463]

Abundant in spring and early summer (E.T.B.) : April to June, common (M.V.L.) : June-July, below 20 m. 1925, a few ; April, July, most in April, abundant June, 1926, beyond Eddystone (F.S.R.)

EUPHYSA AURATA Forbes [1848, p. 71]

Single specimen, 4 m. S. of Breakwater, Sept. 1897 ; Apr.-June 1898, few specimens (E.T.B.)

HYBOCODON PROLIFER L. Agassiz (Hydroid *H. prolifer*) [Browne, 1896, p. 466]

Not uncommon Apr. 1898 (E.T.B.) : few specimens with numerous buds, 1894 (W.G.) : begins in Mar., common May, dwindles June (M.V.L.)

Family **Cladonemidae**

ELEUTHERIA DICHOTOMA Quatrefages (Hydroid, *Clavatella prolifera* Hincks) [Hartlaub, 1907, p. 127]

In tank S. side of Laboratory, budding liberally, thousands on glass front of tank (A.J.S., J.H.O.)

Family **Margelidae**

PODOCORYNE CARNEA M. Sars (Hydroid, *P. carnea*) [Allman, 1871, p. 349]

Free-swimming medusae in March (W.F.R.W.) : July-Aug. (W.G.)

PODOCORYNE AREOLATA (Alder) (= *Cyteandra areolata* Haeckel) [Browne, 1897, p. 817]

Sept. 1897, intermediate stages occasionally met with in the Sound and outside ; June 1898, single specimen, 10 m. S. of Mewstone (E.T.B.)

BOUGAINVILLIA (MARGELIS) RAMOSA (van Beneden) (= *Margelis autumnalis* Hartlaub) [Hartlaub, 1911, p. 183]

Sept. 1897, very scarce ; Sept. 1898 scarce (E.T.B.)

BOUGAINVILLIA BRITANNICA Forbes (= *Margelis bella*, Hartlaub, 1897) [Hartlaub, 1911, 2, p. 162]

1898, a young stage in May, 4 specimens in June (as *M. bella*) ; Plymouth, end of April (as *M. britannica*) (E.T.B.) : 1917-1928, Jan.-Oct., very common in plankton in Sound June 1920, common Aug. 1922 (M.V.L.)

BOUGAINVILLIA PRINCIPIS (Steenstrup) [Hartlaub, 1911, 2, p. 177]

Plymouth, end of April (W.G.)

LIZZIA BLONDINA Forbes [1848, p. 67]

Plymouth, Sept. 1897, of varying frequency in the Sound and on outside grounds ; a large shoal off the Eddystone on Sept. 15th ; May 1898, a large shoal in the Sound on May 2nd ; it disappeared from the Sound on the 12th and was off the Eddystone from the 16th to the 26th, but no specimens were then seen in the Sound or near the Mewstone ; 1899, June-Aug. very scarce ; 7.II.05, a young stage (E.T.B.) : Station L 4, 19.7.20, 18.7.22, in large numbers, budding from manubrium in some cases (M.V.L.)

RATHKEA OCTOPUNCTATA (M. Sars) (= *Margellium octopunctatum*. *Rathkea blumenbachi* Hartlaub) [*Forbes*, 1848, p. 64]

Numerous specimens, during latter half of Feb. and Mar. 1893; less abundant in 1894 (w.g.): 1898, few specimens, in Apr. and Mar. (E.T.B.): usually present in numbers in Sound and outside Jan. to May; occasionally Nov., Dec. (M.V.L.)

Family **Tiaridae**

AMPHINEMA DINEMA (Péron et Lesueur) [*Hartlaub*, 1914, 3, p. 259]

Plymouth (w.g., E.T.B.): Sept. 1893, fairly common; Sept. 1895, scarce; Sept. 1897, several specimens, from Sound and outside grounds; May 1898, two specimens, near the Eddystone; June 1898, single specimen, near the Mewstone, July 1899, common (E.T.B.): may be present in plankton any month of the year, in Sound and outside, seldom in numbers (M.V.L.): a few, June, July, below 20 m. 1925; a few, Apr., May, July, below 20 m. beyond Eddystone, 1926 (F.S.R.)

AMPHINEMA RUGOSA (Mayer) [1910, p. 112, Pls. X-XI, as *Stomotoca rugosa*]

Between Mewstone and Rame Head; off Eddystone; many specimens, some adults, May and June, 1898; off Rame Head, 2 specimens, July, 1899 (E.T.B.)

LEUCKARTIARA OCTONA (Fleming) (= *Tiara pileata* L. Agassiz) (Hydroid ? *Perigonimus repens*) [*Hartlaub*, 1914, 3, p. 285]

Plymouth (w.g.): Sept. 1897, 2 specimens, 4 m. S. of Breakwater and 2 specimens, 5 m. E. of the Eddystone, all young stages; May-June 1898, June 1899, one or two specimens occasionally (E.T.B.): common Mar. to Oct. inside and outside Sound, commoner outside; abundant June, July, Oct. 1928 (M.V.L.): May, June, July, Aug. below 20 m., beyond Eddystone, 1925 (F.S.R.)

Family **Williidae**

WILLIA STELLATA Forbes (Hydroid, *Lar sabellarum* Hincks) [*Forbes*, 1848, p. 19]

Single specimen, May 1896; Sept. 1897, earlier and intermediate stages frequently taken, adult very scarce; June-Aug. 1899, very scarce, only two specimens taken (E.T.B.): inside and outside Sound, not common, Mar. to Oct.; in fair numbers at Station E 1, 29.7.28 (M.V.L.)

Sub-Order **Leptomedusae**

Family **Laodiceidae**

LAODICEA UNDULATA (Forbes and Goodsir) [*Kramph*, 1919, V. I., p. 16]

23.9.05, 5 specimens, 5 m. S. of Rame Head (E.T.B.): Station L. 4, Aug., Oct. 1920-22, July-Oct. 1922, common; very common E. 1, 25.9.28; very abundant Station L 4, Young-fish Trawl, medium and surface; also in tow-nets outside the Sound, 4.9.28 and for the next three weeks, gonads nearly ripe (M.V.L.): common early April, rare May, June, July, abundant Aug., Sept. 1926; common Aug.-Sep. 1929, beyond Eddystone, below 20 m. in daytime (F.S.R.)

Family **Mitrocomidae**

MITROCOMA (**MITROCOMELLA**) **FULVA** (Browne) (?) *Mitrocoma polydiademata* Romanes) [Browne, 1903, p. 17]

Single specimen, off Eddystone, May 1898 (E.T.B.)

MITROCOMELLA **BROWNEI** (Kramp) [1930, p. 23, figs. IX-XI, as *Trissocoma browni*]

Off Plymouth, Sept. 1895, Aug.-Sept. 1897, May 1898 (E.T.B.)

SALCOMBE. Aug. 1900, off Start, May 1903 (E.T.B.)

COSMETIRA **PILOSELLA** (Forbes) = *Euchilota pilosella* (Forbes) [Browne, 1896, p. 484]

Plymouth (E.T.B., E.J.A.) : common every summer (w.g.) : very common, Apr. to Oct., commonest Apr. to Aug., inside and outside Sound, commoner outside (M.V.L.) : Apr. to Aug., largest catches June, July, 1925 ; Apr. to July, largest catches May 1926, below 20 m., daytime, beyond Eddystone (F.S.R.)

TIAROPSIS **MULTICIRRATA** (M. Sars) [Haeckel, 1879, p. 179]

Apr. 1895 (E.J.A.)

Family **Eucopidae**

AGASTRA **MIRA** Hartlaub (Hydroid, *Orthopyxis* (*Campanularia*) *caliculata* Hincks) [Browne, 1897, p. 832]

A single specimen, in Sound, Aug. 1897 (E.T.B.) : 24.7.22, nr. Bigbury Bay, 5 specimens (M.V.L.)

OBELIA **NIGRA** Browne [1900, p. 721]

Common ; 1898, very abundant Apr.-May ; 1899, abundant in June (E.T.B.) : common spring and summer in Sound and outside (M.V.L.)

OBELIA **LUCIFERA** Forbes = *Obelia dichotoma* and *O. geniculata* [1848, p. 52 as *Thaumantias*]

Very plentiful, June 1898 (E.J.B.) : by far the most abundant Leptomedusa in the Sound and outside, Sept. 1897 (E.T.B.) : very common spring and summer, inside and outside Sound (M.V.L.)

PHIALIDIUM **HEMISPHERICUM** (L.) = *Phialidium temporarium* Browne and *Thaumantias buskiana* Gosse (Hydroid *Clytia johnstoni*) [Browne, 1896, p. 480]

Sept. 1893 ; Sept. 1895 ; Sept. 1897, few specimens nearly always present in tow-nettings ; June 1898, only once taken (recorded as *P. buskianum*) (E.T.B.) : nearly always present from the spring until autumn (recorded as *P. temporarium*) (E.T.B.) : present throughout the year, commonest May to Sept., often very abundant (M.V.L.) : R. Tamar to within one mile of Pentillie Quay ; off Shevioc Wood, R. Lynher ; July, Aug., Oct. 1928 (E.P.)

PHIALELLA (**PHIALIDIUM**) **CYMBALOIDES** (van Beneden) (Hydroid, *Campanulina repens*) [Browne, 1896, p. 491]

Sept. 1893 ; Sept. 1897 ; Apr.-May 1898 ; June-July 1899 ; never very abundant, but a few specimens generally taken (E.T.B.)

SAPHENIA GRACILIS (Forbes and Goodsir)=*Saphenia mirabilis* (Wright) [Browne, 1896, p. 493]

Near Eddystone, July 1891, some hundreds (J.T.C.): off Penlee, at bottom in 9 fms. July 1892 (E.J.B.): 1897, single specimens in Aug. and Sept.; Apr.-June 1898, few specimens; June-July 1899, few (E.T.B.): common outside Sound Apr.-July, less common later (M.V.L.): below 20 m. Apr.-Aug., most common July, 1926; Apr.-Aug., largest catches July, 1925, beyond Eddystone (F.S.R.)

EUTIMA INSIGNIS (Keferstein) [Browne, 1896, p. 492]

Oct. 1893 (W.G., E.T.B.): Sept. 1895 single adult; June 1898, S. of Mewstone, two specimens; Aug. 1899, single specimen; 23.9.05 one adult, 5 m. S. of Rame Hd. (E.T.B.)

OCTORCHIS GEGENBAURI Haeckel [1879, p. 197]

Sept. 1895, single specimen; 1899 four specimens, in July, one in Aug.; 23.9.05, one adult, 5 miles S. of Rame Head (E.T.B.): Station L 4, 2.10.28, Young-fish Trawl, several, gonads nearly ripe; outside Eddystone, Sept.-Oct., 1929, a few (M.V.L.)

EIRENE PELLUCIDA (Will) [Haeckel, 1879, p. 201]

Oct. 1892, several specimens (W.G.): Sept. 1897, single specimen from Sound, two specimens, 3 m. S.W. of Mewstone, all young stages (E.T.B.)

Family Aequoridae

AEQUOREA FORSKALEA, Péron et Lesueur [Mayer, 1910, II., p. 325]

Single specimen, early stage, 19.9.05, 2 miles S. of Rame Head (E.T.B.): occasionally outside the Sound, single specimen, young (M.V.L.): young, July, outside Eddystone, 1925 (F.S.R.)

Sub-Order Trachymedusae

Family Trachynemidae

AGLANTHA ROSEA (Forbes) [1848, p. 34]

June-July 1914, common, Eddystone (E.T.B.): inside and outside Sound occasionally, Aug., Sept., Oct. (M.V.L.): April, outside Eddystone C.F.S.R.): Feb. outside Eddystone (M.V.L.)

Family Geryonidae

LIRIOPE EXIGUA (Quoy et Gaimard)=*Liriantia appendiculata* Forbes [1848, p. 36 as Geryonia]

Exceedingly abundant, Sept., Oct., 1893; absent Sept. 1895; scarce and only early stages in Sound and outside Grounds, Sept. 1897 (E.T.B.): Jan. 1896 (E.J.A.): very abundant, Station L 4, 4.9.25; (14-16 mm. across), abundant, 12.10.28, Station L 4 (M.V.L.): Aug. 1925, outside Eddystone (F.S.R.)

Sub-Order Narcomedusae

Family Solmaridae

SOLMARIS CORONA Keferstein and Ehlers=*S. coronantha* Haeckel [1879, p. 359] Plymouth, Sept. 1895 (E.T.B.)

Order SIPHONOPHORA

Sub-Order *Disconectae*Family **Velellidae**

VELELLA SPIRANS (Forskal) [*Vanhöffen*, 1906, p. 37 ; *Chun*, 1898, p. 93]

Occasionally brought to the Cornish and Devonshire coasts : Mar. 1903, Looe Bar, opposite Gunwalloe Coast Guard Station S. of Helston, rocks and pools crowded ; Oct. 1903 in the same pools (Mr. Howard Fox, Falmouth) : Jan. 1916, enormous numbers from rocks under Laboratory, drifted ashore ; from just E. and 50 yds. W. of the Promenade Pier (A.J.S.) : also found along Cornish Coast at the same time : 23.1.21, from Bude, sent by Miss G. Cotton.

Sub-Order *Calycophorae*Family **Monophyidae**

MUGGIAEA ATLANTICA Cunningham [1892, p. 212]

First met with 5 m. S. of Eddystone, afterwards in great abundance close to Breakwater, and even inside Sound, Sept. 1891 (J.T.C.) : 1892, appeared near end of Aug. (E.J.B.) : Sept. 1893, fairly abundant early part of month ; Sept. 1895 exceedingly abundant (E.T.B.) : 1895, middle Aug. mid. Dec. (T.V.H.) : 1903 occasionally met with in Feb. (W.G.) : tow-nets, West Channel, 23.4.12 (J.H.O.) : in Nov. 1920 and 1921 it was the most important feature of the plankton in the Sound, in 1921 also outside ; may be present any month, commonest Sept. to Dec. (M.V.L.)

Sub-Order *Physophorae*Family **Agalmidae**

STEPHANOMIA BIJUGA (Delle Chiaje) = *Cupulita sarsi* Haeckel [*Browne*, 1900, p. 678]

Recorded in 1904 Fauna List as *Agalmopsis sarsi*.

Mar., 1902, single specimen from $\frac{1}{2}$ m. S.W. of Mewstone and West Channel (R.A.T.) : 18.9.05, one very small specimen in tow-net, Eddystone S. by E., 2 m. (E.T.B.) : floats common outside Sound, usually autumn and winter (M.V.L.) : several entire specimens off Yealm Sand-bank and out to the mouth of R. Yealm, in tow-nets, early May, 1929 (O.D.H.)

SALCOMBE. In the main and secondary channels of the Estuary, even to the heads of tidal creeks, 17-19.5.29, with Beroë, Bolina and Pleurobrachia (N.J.B.)

Sub-Order *Cystonectae*Family **Caravellidae**

PHYSALIA (SP. ?) **ARETHUSA** (Browne) [*Vanhöffen*, 1906, p. 35-36] (Portuguese Man of War)

Very rarely drifted ashore under Laboratory ; last seen some years before the War (A.J.S.)

Class **SCYPHOMEDUSAE**

Order STAUROMEDUSAE

Family **Lucernariidae**

DEPASTRUM CYATHIFORME (M. Sars) [1846, p. 26]

Mt. Edgcumbe ; Batten (E.J.A.) : Drake's I. ; Rame Hd. (W.G.)

LUCERNARIA CAMPANULATA Lamouroux [*Haeckel*, 1879, p. 392]

Reny Rks., several small specimens with *Haliclystus* ; single specimens from Cawsand B. and Whitsand B. (w.i.B.) : one specimen, *Zostera* bed (N. Bank), mouth of R. Yealm, 3.3.15, deep red all over (A.J.S.)

HALICLYSTUS AURICULA (Rathke) [*Beaumont*, 1900 a, p. 806]

Yealm Est., on *Zostera*, fairly common (s.p.) : Reny Rks., on *Enteromorpha*, in high-tide rock-pools (A.J.S.) : Cawsand B., on *Zostera*, occasionally (s.p.) : *Zostera* bed, mouth of R. Yealm (N. Bank), low tide, many, 30.9.09 ; 3.3.15, plentiful ; 6.3.16 rare (A.J.S.)

Order SEMAEOSTOMEAE

Family **Pelagiidae****CHRYSAORA ISOSCELES** (L.) [*Haeckel*, 1879, p. 513]

Occasionally during the summer months (s.p., m.v.l.). Planulae liberated in Aug. and reared to *Scyphistoma* stage (E.T.B.)

Family **Cyaneidae****CYANEA CAPILLATA** (L.) [*Haeckel*, 1879, p. 529]

Plymouth (E.T.B.)

CYANEA LAMARCKI Péron et Lesueur [*Haeckel*, 1879, p. 530]

Occasionally every summer (A.J.S.) : common outside Sound (m.v.l.) : young common April-May, 1926, almost all young less than 2 inches, mostly less than 1 inch in Apr., in May $\frac{1}{2}$ to 4 inches, June, full size, 3-7 inches ; 1927, few only in May, June, July ; 1929, few below 1 inch diameter, Apr., young common May, June, full grown July, beyond Eddystone (F.S.R.)

Family **Aureliidae****AURELIA AURITA** (L.) [*Haeckel*, 1879, p. 552]

Most abundant in the estuaries in spring and summer ; R. Tamar ; Hamoaze ; Yealm Est. ; carried out into the Channel towards the end of the summer (E.J.A.) : Saltash (E.T.B.) : up to within 1 mile of Pentillie Quay, R. Tamar (E.P.) :

The ephyrae appear in Feb. and may be taken in shoals during the first fortnight of Mar., they metamorphose towards the end of the month and begin to disappear. The young medusae reappear towards the end of May and reach their maximum abundance during June (w.g.) : *Scyphistomae* to beach 100 yards above Antony Creek, R. Lynher ; Cargreen Hard, R. Tamar ; very abundant on Mussel bed off Neille Pt. June-Oct. 1928 (E.P.) : many *schiphistomae*, March, 1909 ; strobilised from small tank in Aquarium, 30.4.09 ; many strobilising in several tanks, Mar., Apr. 1917 and thousands of ephyrae liberated in Conger tank, 29.3.18 ; 6 specimens observed in large tank in Aquarium, 26.2.19, several hundreds in conger tank, 15.3.19 ; many ephyrae in conger tank, 12.4.20, seven ephyrae in same tank 29.1.26, a few 6.3.27, many 15.3.28, fairly numerous 4.2.29 (A.J.S.)

Order RHIZOSTOMAE

Family **Rhizostomidae**

RHIZOSTOMA OCTOPUS (L.) [*Haeckel*, 1879, p. 593, as *Pilema*]
Occasionally (S.P., M.V.L.)

Class **ANTHOZOA**

Sub-Class ALCYONARIA

Order ALCYONACEA

Family **Cornulariidae**

SARCODICTYON CATENATA Forbes (*Herdman*, 1895, p. 163]

Eddystone Gds. ; the red form is found, often in abundance, on old shells, and is generally most plentiful on clean shell-gravel (E.J.A., S.P.) : Stoke Pt. Gds. ; Rame-Eddystone Gds. ; etc. (S.P.)

Family **Alcyonidae**

ALCYONIUM DIGITATUM L. [*Hickson*, 1895, p. 349]

Generally present in dredgings from Sound and outside gds., but the colonies are usually small (R.A.T., S.P.) : Promenade Pier, large colonies are occasionally common at extreme low water (E.J.A., R.A.T., S.P.) : Eddystone Gds., large colonies abundant on the fine sand of the 'Outer' Trawling Gds. and S. of Eddystone, attached to valves of *Cardium echinatum*, etc. (E.J.A.) : generally plentiful in outside waters from 8 to 41 m. S.W. of Eddystone, 40-52 fms., sometimes abundant ; a single specimen of the yellow variety in 40 fms., 7.6 m. S.W. of Eddystone (Crawshay, 1912, p. 332)

Breeding : Oct. ; Jan. (R.A.T.) : Nov-Feb. (W.G.) : Jan.-Feb. (A.M.) : one from Mewstone, 20.12.26, gave off eggs during the night, a fair number segmenting when preserved (S.M.N.)

ALCYONIUM GLOMERATUM (Hassall) [*Hickson*, 1895, p. 353]

Mewstone Ledge (R.A.T.) : Mewstone Ledge, 6.10.13, a very fine colony, dredge (A.J.S.)

ALCYONIUM PALMATUM Pallas [*von Koch*, 1891, p. 663]

Mewstone Ledge (S.P.) : 3 m. S.E. of Mewstone (E.J.A.)

Order GORGONACEA

Family **Plexauridae**

EUNICELLA VERRUCOSA (Pallas) [*von Koch*, 1887, p. 58, as *Gorgonia cavolini* ; *Thomson*, 1912, p. 482]

More or less common everywhere on rocky gd., 10-25 fms. (S.P.) : Mewstone Ledge, very common (E.J.A., R.A.T., S.P.) : Queen's Gd., rare (R.A.T., S.P.) : Rame-Eddystone Gds. ; Stoke Pt. Gds. (S.P.) : Mewstone and Eddystone Gds. generally, latter half Aug. and first half of Sept. 1924 ; Captain Lord reported that a great amount of *Eunicella* brought up was dead ; many colonies brought in were partially dead, none in such good condition as in the previous July (A.J.S.)

Order PENNATULACEA

Family **Virgulariidae**

VIRGULARIA MIRABILIS O. F. Müller [*Marshall & Marshall*, 1881, p. 51]

Single specimen nr. Eddystone (w.p.m.): 6 m. W.S.W. of Penlee Pt. (R.A.T.): Stoke Pt. Gds. (S.P.)

Sub-Class CERIANTHARIA

Family **Cerianthidae**

CERIANTHUS LLOYDI Gosse [*Gosse*, 1860, p. 268]

Adult in muddy sand, N. side of Drake's I. (R.A.T.): 22.3.09 (W.O.R.K.): Mallard Pit 20.1.11, 3 small specimens (1-2 ins. when expanded), dredged, 32 tentacles instead of 64; 10.2.11, 14 specimens, dredged; 31.1.18, 3 specimens, one about 2 ins. long, the others much smaller, dredged (A.J.S.):

Arachnactis larva common in tow-nettings from Sound and outside in spring and summer (R.A.T., M.V.L.)

SALCOMBE. Common on the mud bank in front of the Marine Hotel; hundreds in March, 1927 (T.A.S.)

Sub-Class ZOANTHINARIA

Family **Zoanthidae**

EPIZOANTHUS COUCHI (Johnston) [*Haddon & Shackleton*, 1891, p. 644]

Duke Rock, common (w.g.): Millbay Ch., not uncommon (w.g., R.A.T.): 2 colonies, 20 m. S.W. of Eddystone, 44 fms., each growing on a stone: polyps 7 and 15 respectively partly connected by a ribbon-shaped band; partly isolated (Crawshay, 1912, p. 333)

EPIZOANTHUS INCRUSTATUS (Düben and Koren) [*Haddon & Shackleton*, 1891, p. 636]

Mewstone Grounds, common on shells inhabited by *Anapagurus laevis* (R.A.T.): Eddystone Grounds, a characteristic species of, and confined to, the "outer" Trawling Grounds (E.J.A.): 2 specimens, 28.8 m. S.W. of Eddystone, 45 fms. (Crawshay, 1912, p. 333): none available since 1923 (W.E.E.)

EPIZOANTHUS RUBRICORNIS (Holdsworth) [*Haddon & Shackleton*, 1891, p. 652]

Haddon and Shackleton doubt the distinction of this species from *E. couchi* and W. E. Evans believes them to be justified, 5 miles S.W. of Rame, Sept. 1902 (C.L.W.)

PARAZOANTHUS DIXONI Haddon and Shackleton [1891, p. 658]

Millbay Channel, Dec. 1902 (C.L.W.)

Sub-Class ACTINIARIA

Family **Edwardsiidae**

EDWARDSIA CALLIMORPHA (Gosse) [1860, p. 255]

Yealm Sand-bank, single specimen (R.A.T.): Jennycliff B. 12.4.12 (Walton & Rees, 1913, p. 61, as *E. clapedi*)

SALCOMBE. Mud bank in front of Marine Hotel, March, 1927 (T.A.S.)

MILNE-EDWARDSIA CARNEA (Gosse) [1860, p. 259]

Millbay Channel (S.P.) : Church Reef, Wembury B. (R.A.T.)

Family **Halcampidae****HALCAMP A CHRYSANTHELLUM** (Peach)=*H. arenaria* Haddon [Haddon, 1889, p. 335]

Yealm sand-bank common (A.J.S., R.A.T.) : 18 to 20 specimens, 28.1.18, spade, 15 ft. 5 ins. tide (A.J.S.) : Rum B. (J.H.O. *vide* Walton and Rees, 1913, p. 66, as *H. arenaria*). The larvae parasitic on medusae recorded in the 1904 Fauna List belong to *Peachia hastata*. Sperm, Feb. 1927 (T.A.S.).

SALCOMBE. One buried in zostera bank near Millbay on eastern side of Salcombe Harbour (Allen & Todd, 1900, p. 187) ; mud-bank in front of Marine Hotel, March 1927 (T.A.S.)

Family **Ilianthidae****PEACHIA HASTATA** Gosse (including *P. triphylla* and *P. undata* Gosse) [1860, p. 235]

Mount's Bay 6.4.86, Start Bay, inshore 9.8.01. Mewstone trawling grounds, 27.3.22, trawl (J.H.O.) : one dredged off Plymouth, June 1925, still alive 10.2.29 (W.E.E.)

Breeding : Young on medusae, very common in spring and summer (M.V.L.) : the same species recorded as common on medusae in May (W.G., E.J.A., R.A.T.)

SALCOMBE. Low water (T.A.S., W.E.E.) : west side of Estuary (G.M.S.)

ILYANTHUS MITCHELLI Gosse [1860, p. 232]

From a Plymouth trawler, 2.5.03 ; Rame mud, 3 m. S. of Breakwater Light, one, dredge, 13.2.29 (A.J.S., W.E.E.) : Eddystone Gds., Jan. 1924, 1925, both still alive, 10.2.29 (W.E.E.) : not infrequent on Eddystone Gds. (T.A.S.)

ELOACTIS MAZELI (Jourdan) [*Garstang*, 1892, p. 380]

Single specimen, a few miles off Mewstone, 20 fms. (W.G.) : head end only, Rame mud, 3 m. S. of Breakwater Light, dredge, 13.2.29 (A.J.S., W.E.E.) : Eddystone bearing N.E., 8-9 m. 17.5.29, trawl, two entire specimens (A.J.S., J.H.O.) : three damaged specimens, dredged off Plymouth 1925 (W.E.E.) : ova 26.10.26., Sept. 27 (W.E.E.)

Family **Actiniidae****ACTINIA EQUINA** L. [Gosse, 1860, p. 175]

Common on rocks between tide-marks (R.A.T., S.P.) : upper tidal zone, on walls and rocks, up to boathouse near Ince Castle, R. Lynher ; on rocks up to Neille Pt., R. Tamar (E.P.)

Breeding : Jan.-Aug. (R.A.T.) : a large specimen (strawberry variety) from Whitsand Bay near Tregantle (shore) extruded large quantity of active sperm Nov. 26 (captured Oct. 24), when during the afternoon it had been kept in water with one third the usual quantities of dissolved gases (C.C.S.) : viviparous young habitual (T.A.S., W.E.E.).

SALCOMBE. On rocks at mouth of Harbour ; one or two at Millbay (Allen & Todd, 1900, p. 187)

ANEMONIA SULCATA (Pennant) [Gosse, 1860, p. 160, as *Anthea cereus*]

More or less common everywhere on rocks between tide-marks and on the *Zostera* beds; the slate-coloured variety is more abundant than the typical form with violet-tipped, green tentacles, and on the *Zostera* it alone is present; a flesh-coloured variety is occasionally met with; Yealm Sand-bank, brownish var. only (S.P.): longitudinal fission 22.9.22, 28.4.24, 2.4.25, 1.9.23 (W.E.E.)

TEALIA FELINA (L.) [Gosse, 1860, p. 209, as *Tealia crassicornis*] var. *coriacea* (Cuvier)

Not uncommon on rocks between tide-marks and occasionally in 10-20 fms. in Sound; the specimens are not usually of great size; var. *tuberculata* (Cocks), large and very warty, occasionally trawled in 20-40 fms. (R.A.T.).

SALCOMBE. On the rocks at mouth of Harbour (Allen & Todd, 1900, p. 187).

Breeding: May (W.G.); Sperm 5.11.22 (W.E.E.)

BUNODACTIS VERRUCOSA (Pennant) [Gosse, 1860, p. 190, as *Bunodes gemmacea*]

Caves under the Lab. (G.C.B.): Drake's I., common on rocks (E.J.A., R.A.T., S.P.): Mt. Edgcombe (E.J.A.): Rum Bay, not uncommon between tide-marks (R.A.T., E.J.A.): Jennycliff B., between tide-marks, rare (R.A.T.): Bovisand Cove (R.A.T.): Whitsand B., common between tide-marks (R.A.T.)

Breeding: Mar. (R.A.T.): Apr., Sept. (W.G.): Rum B. shore, 16.7.12, with young inside mother (J.H.O.): Salcombe 1927 (T.A.S.). Viviparous young habitual, a brood of 27 young produced under the action of menthol, 30.5.27 (T.A.S.)

Family **Aurelianiidae****AURELIANIA HETEROCERA** (Thompson) [Gosse, 1860, p. 285]

Ca. 3 miles off Mewstone, dredged, May 1927; a perfectly typical specimen (T.A.S.)

Family **Diadumenidae****DIADUMENE LUCIAE** (Verrill) [1898, p. 493]

Drake's I., under stones, near top of tide 5.12.07 (C.L.W.): from a government ship which had been moored in the mouth of the River Lynher (opposite the Instructional Ship "Defiance") and was brought down to Queen Anne's Battery for breaking up purposes; fine colonies on large mussels, as many as thirty specimens on a single mussel (*Mytilus edulis*), 12.4.23, (A.J.S.): the Breakwater, under stones, along with *D. cincta*, April 1927 (T.A.S.): Rum Bay and Drake's I. (C.L.W.): Millbay Docks and Cattewater (A.J.S.): R. Tamar, rocks between "Defiance" and Saltash, in lower tidal zone; Cargreen on Hard, 19.7.28 (E.P.). Longitudinal fission habitual (T.A.S.). Seems to be dying out at Plymouth; there was great difficulty in getting it in 1927 and then only a few small specimens (A.J.S.)

DIADUMENE CINCTA Stephenson [1925, p. 880]

The Breakwater, under stones, April 1927 (T.A.S.): mussel-bed off Neille Pt. opposite mouth of Tavy; R. Tamar, dredged in *ca* 4 ft., 3.10.28 (E.P., W.E.E.): plentiful from mussels from Cattewater in 1927 (T.A.S.).

This anemone has been known from the Breakwater and Pier for many years but not recognised as a distinct species. Laceration by tearing frequent (T.A.S.)

Family Aiptasiidae

AIPTASIA COUCHI (Cocks) [Gosse, 1860, p. 152]

Rocks below the Lab., occasionally (G.C.B., R.A.T.): Reny Rocks, not uncommon (R.A.T.): two pools on Reny Rocks with about 12 ins. of water, near 14 foot tide-mark, on the main reef midway to high rocks, looking South, were full of this anemone, more than 150 of various sizes, *Corallina officinalis* carpeting the floors of the pools, 3.11.21 (A.J.S.): Winter Shoal, dredge, 4 specimens 19.1.10, 8 specimens 26.3.18, 12 specimens from small to medium, 2.1.20 (A.J.S.): some good ones from Winter Shoal, dredged, 1927 (T.A.S.). Transverse fission Oct. 25, viviparous young, Sept. 1925 (W.E.E.)

Family Metridiidae

METRIDIDIUM SENILE (L.) var. *dianthus* (Ellis) [Gosse, 1860, p. 12, as *Actinoloba dianthus*]

Promenade Pier, very common on the piles at extreme low water (R.A.T., S.P.): Millbay Ch., occasional specimens (R.A.T.): Yealm Sandbank, occasionally (R.A.T.): Yealm Estuary, young specimens, common on the rocks between tide-marks (S.P.)

Breeding in tanks, Aug.-Sept. (S.P.): in large tank shedding ova 16.9.11; sperm afterwards obtained from another specimen and artificial fertilisation tried, but only a few doubtful planulae were seen: planulae obtained by Mrs. Matthews (J.H.O.): one in Drake's I. tank extruding sperm in abundance, apparently from one end of the siphonoglyph, 16.8.22 (J.H.O.):

var. *pallidum* (Holdsworth), 2 specimens, on wooden mudguard lying on mud bank, $\frac{1}{2}$ m. above Saltash Bridge, on left bank, 19.9.28 (E.P., W.E.E.). Laceration habitual, ova 4.8.22 (W.E.E.)

CALLIACTIS PARASITICA (Couch) [Gosse, 1860, p. 112, as *Sagartia*]

More or less common everywhere 15-30 fms., associated with *Eupagurus bernhardus* (S.P.): specimens sent alive to Edinburgh arrived April 2.27, eggs extruded next day (A.D.H.)

SALCOMBE. On shells inhabited by *Eupagurus bernhardus*: on the shore at Salstone, and dredged from the channel between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 186)

Sperm, Sept. 22 (W.E.E.)

ADAMSIA PALLIATA (Bohadsch) [Gosse, 1860, p. 125]

Generally distributed and common, 10-30 fms., associated with *Eupagurus prideauxi*; Eddystone Gds., Rame-Eddystone Gds., Mewstone Gds., Cawsand B., Yealm R. etc. (S.P.): from 20 to 40 m. S.W. of Eddystone, 4-49 fms., in most cases as single specimens and always with *Eupagurus prideauxi* when a pagurid was present (Crawshay, 1912, p. 332)

SALCOMBE. Dredged in channel between Salstone and mouth of Harbour; commensal with *Eupagurus prideauxi* (Allen & Todd, 1900, p. 186): up the middle branch of the Salcombe Estuary (N.J.B.)

Ova, 29.10.25 (W.E.E.)

CATAPHELLIA BRODRICI (Gosse) [Gosse, 1860, p. 349]

Wembury, on shore, behind prominent insular rock ; near low water of spring tide, March 1927 (T.A.S.)

SALCOMBE. Castle Rocks, under boulders in Laminarian zone, fairly common, not always at lowest levels exposed at spring tide, March 1927 (T.A.S.)

Viviparous young in quantity from specimens collected at Salcombe and Wembury in Mar. and Apr. 1927 (T.A.S.)

HORMATHIA DIGITATA (O. F. Müller) [Haddon, 1889, p. 306]

Eddystone Gds., a few specimens on the " outer " trawling grounds, and on the fine sand S. of the Eddystone, inside valves of *Cardium echinatum* (E.J.A.)

HORMATHIA CORONATA (Gosse) [Gosse, 1860, p. 202, as Bunodes]

Occasionally in the deeper water outside the Breakwater, and in Millbay Channel (W.G.): Rame-Eddystone Gds., single specimen on Hydroid stem (R.A.T.): common from Chaetopterus tubes from Cattewater, in dozens 1927 ; also in dredgings in twos and threes (T.A.S.): extending from about 8 to 50 m. S.W. of Eddystone, 40-53 fms., at intervals (Crawshay, 1912, p. 332): Jan. 1925 (one), Apr. 1926 (two), dredged off Plymouth (W.E.E.)

Breeding: Jan.-Apr. (W.G.); viviparous young, 15.3.25, 7.5.25, 10.6.25, 7.4.27 (W.E.E.)

PARAPHELLIA EXPANSA (Haddon) [Haddon, 1889, p. 321]

Eddystone Gds., a few specimens, apparently living buried in the sand (E.J.A.): Rame-Eddystone Gds. (R.A.T.): extending from about 8 to 50 m. S.W. of Eddystone, 40-53 fms. (Crawshay, 1912, p. 332)

GEPHYROPSIS DOHRNI (von Koch) [Haddon, 1889, p. 325]

Mewstone Ledge, on *Eunicella*, not uncommon (T.V.H., A.J.S., R.A.T., S.P.)

Laceration, 15.11.25 (W.E.E.)

Family **Sagartiidae**

SAGARTIA ELEGANS (Dalyell)

var. *miniata* (Gosse) [1860, pp. 41 and 57] Asia Sh. (A.J.S., R.A.T.): Millbay Ch. (R.A.T.): extending from about 8 to 50 m. S.W. of Eddystone, 40-53 fms. (Crawshay, 1912, p. 332): Plymouth Pier and Millbay Pit, 1927 (T.A.S.)

Sperm, Nov. 25 (W.E.E.)

var. *venusta* (Gosse) [Gosse, 1860, p. 60]. Between Bolt Tail and the Avon (C.L.W.): Drake's I. shore (C.L.W.).

var. *nivea* (Gosse) [1860, p. 67]. Rocks below Laboratory, one specimen (G.C.B.): between Bolt Tail and the Avon (C.L.W.)

var. *rosea* (Gosse) [1860, p. 48]. Between Bolt Tail and the Avon (C.L.W.)

SAGARTIA ANGUICOMA (Price) (= *S. viduata*) [Gosse, 1860, p. 105]

Rare within Sound, but common in the neighbourhood (w.g.): Promenade Pier, not uncommon on the piles at extreme low tide (R.A.T., A.J.S.): Millbay Ch., not uncommon (R.A.T.): the so-called var. *melanops*, S. side of R. Yealm, opposite House-boats (shore), spade, 7.3.16, one very good specimen (A.J.S.); this is only a colour form (W.E.E.)

SALCOMBE. Dug up (T.A.S., N.J.B.)

Longitudinal fission habitual (W.E.E. and T.A.S.)

SAGARTIA LACERATA (Dalyell) [Gosse, 1860, p. 84, as *S. coccinea*]

Cattewater, abundant, probably from trawl refuse (C.L.W.). Laceration by constriction habitual (W.E.E., T.A.S.)

SAGARTIA SPHYRODETA Gosse [1860, p. 73]

Drake's I., at low tide (w.h.): Mallard Sh. (J.C.S.): Millbay Ch., occasionally (R.A.T., E.J.A.): Reny Rocks and Asia Sh. (C.L.W.)

SAGARTIA TROGLODYTES (Price) [Gosse, 1860, p. 88]

var. *ornata* Holdsworth, on wooden mudguard lying on mud-bank $\frac{1}{2}$ mile above Saltash Bridge, on left bank; mussel bed off Neille Pt., 19.9.28, 3.10.28 (E.P., W.E.E.)

var. *decorata* Salcombe, rocks on E. side of estuary, a few specimens 1927 (T.A.S.)

Viviparity habitual (T.A.S., W.E.E.). Sperm, 11.6.22, ova 9-10.6.23 (W.E.E.)

CEREUS PEDUNCULATUS (Pennant) [Gosse, 1860, p. 27, as *Sagartia bellis*]

Common on the shore where the ground is suitable, this form seeming to prefer muddy sand with stone; not uncommon in dredgings from Millbay Ch., Mallard Sh., etc. (R.A.T.): Asia Sh. 5.12.07 (C.L.W.): especially common in the estuaries of the Yealm, Tamar, and Plym (E.J.A.).

Breeding: Jan.-Feb.: Dec. (w.g.): Kelly's Slip (Mount Batten), 13.10.11, discharging young on being squeezed (J.H.O.): Rat. I., R. Lynher; St. John's Lake, 30.8.28, 16.9.28 (E.P.)

SALCOMBE. In extraordinary profusion in certain parts of the Estuary, where stones or gravel lie from an inch to three or four inches beneath the surface of fine mud; Kingsbridge Estuary, Salstone and shore between Halwell Pt. and Pilworthy Pt. (Allen & Todd, 1900, p. 185)

Viviparity habitual (W.E.E., T.A.S.)

Sub-Class MADREPORARIA

Family Turbinolidae

CARYOPHYLLIA SMITHI Stokes [Gosse, 1860, p. 310]

More or less abundant on all rocky stations, low water to 30 fms., under boulders and in rock crevices (S.P.): the Breakwater; Mewstone Ledge, etc. (E.J.A., S.P.): frequently from 21 to 48-9 miles S.W. of Eddystone, 42-53 fms., many at 48-9 miles (Crawshay, 1912, p. 333)

The cirripede *Pyrgoma anglicum* is commonly found attached to the margin of the cup of this species, and frequently several occur upon a single coral (s.p.)

SPHENOTROCHUS MACANDREWANUS Milne Edwards [Gosse, 1860, p. 324]

Mewstone bearing N. $\frac{1}{2}$ W. $1\frac{1}{2}$ m., 10.6.12, dredge, one specimen (A.J.S.)

Family **Corallinomorphidae**

CORYNACTIS VIRIDIS Allman [Gosse, 1860, p. 289]

More or less common in crevices and under stones on all rocky stations low-water to 15 fms. (s.p.) : the Breakwater (E.J.A., R.A.T., s.p.) : Millbay Ch. (R.A.T., s.p.) : several specimens on stones and on shells of Pinna, 48-49 m. S.W. of Eddystone, 51 fms. (Crawshay, 1912, p. 332)

Family **Astraeidae**

HOPLANGIA DUROTRIX Gosse [1860, p. 338]

Wembury Bay (shore) 2.9.09, a fine colony (C.L.W.)

Family **Eupsammiidae**

BALANOPHYLLIA REGIA Gosse [1860, p. 343]

A colony found whilst shore collecting at Sandway Cellar, Sandway Point, Cawsand Bay, about half tide, on the vertical sides of a small cave ; only three patches seen ; originally found by William Searle in May 1906 who removed some with hammer and chisel ; since then they can always be found in the same place, about two dozen together ; a few found once on Reny Rocks, February 1929, by William Searle, not found since although searched for in the same place (A.J.S.) Observed extruding planulae 28.4.30 (C.M.Y.)

Class **CTENOPHORA**

BOLINOPSIS INFUNDIBULUM (O. F. Müller) [Krumbach, 1927, p. 15]

Abundant in May of particular years (w.g.) : Sept. 1900 (A.J.S.) : plentiful in spring and summer from 1916 to the present time, inside and outside Sound (M.V.L.). Young growing in plunger jar.

PLEUROBRACHIA PILEUS (O. F. Müller) [Krumbach, 1927, p. 6]

Always abundant towards the end of May (w.g.) : adults not seen after June ; minute specimens appeared in Sept. (E.J.B.) : Aug. (T.V.H.) : plentiful at times from spring to autumn and, more rarely, in winter, from 1916 to the present time, from the coast to near Eddystone ; young often in tow-nets (M.V.L.)

BEROE CUCUMIS Fabricius [Krumbach, 1927, p. 22]

A few small specimens (E.T.B.) : occasionally both large and small specimens in spring, summer and autumn from 1916 to the present time ; young frequently in tow-nets ; very abundant outside Breakwater to near Eddystone in summer, 1929 (M.V.L.)

Phylum **PLATYHELMINTHES**Class **TURBELLARIA**

Order ACOELA

Family **Proporidæ**

PROPORUS VENENOSUS (O. Schmidt) [*Gamble*, 1893, p. 440; *von Graff*, 1882, p. 217 and 1905, p. 5]

Not uncommon at low water, Wembury B. and Drake's I. (F.W.G.)

OTOCELIS RUBROPUNCTATUS (O. Schmidt) [*Gamble*, 1893, p. 441, as *Monoporus*; *von Graff*, 1882, p. 217, as *Proporus* and 1905, p. 9]

Not uncommon at low water, Wembury B. and Drake's I. (F.W.G.)

Family **Convolutidæ**

APHANOSTOMA DIVERSICOLOR Oersted [*Gamble*, 1893, p. 442; *von Graff*, 1882, p. 220 and 1905, p. 11]

Various localities between tide-marks (F.W.G.)

APHANOSTOMA RHOMBOIDES Jensen [*Gamble*, 1893, p. 443, as *A. elegans*; *von Graff*, 1882, p. 222 and 1905, p. 12]

One specimen amongst *Ulva* at Redding Pt. (F.W.G.)

CONVOLUTA SALIENS (von Graff) [*Gamble*, 1893, p. 444; *von Graff*, 1882, p. 224, as *Cyrtomorpha* and 1905, p. 16]

Among *Zostera* from Cawsand B., rare (F.W.G.)

CONVOLUTA CONVOLUTA (Abildgaard) [*Gamble*, 1893, p. 445, as *C. paradoxa*; *von Graff*, 1882, p. 228 and 1905, p. 18]

Littoral zone, widely distributed, nowhere abundant (F.W.G.)

CONVOLUTA FLAVIBACILLUM Jensen [*Gamble*, 1893, p. 448; *von Graff*, 1882, p. 227 and 1905, p. 17]

Among sand in creeks at Picklecombe Fort, Wembury B. and Bovisand B. (F.W.G.)

Order RHABDOCOELA

Family **Microstomidæ**

MICROSTOMUM GROENLANDICUM (Levinsen) [*Gamble*, 1893, p. 449; *von Graff*, 1882, p. 252 and 1913, p. 42]

Among *ulva*, Redding Pt. (F.W.G.)

Family **Graffillidæ**

PROVORTEX BALTICUS (Schultze) [*Gamble*, 1893, p. 468; *von Graff*, 1882, p. 345 and 1913, p. 75]

Between tide-marks, chiefly at Wembury B. (F.W.G.)

PROVORTEX AFFINIS (Jensen) [*Gamble*, 1893, p. 469; *von Graff*, 1882, p. 346 and 1913, p. 76]

Drake's I. among algae (F.W.G.)

PROVORTEX RUBROBACILLUS Gamble [1893, p. 469 ; *von Graff*, 1913, p. 77]
Dredged off New Gds. (F.W.G.)

Family **Byrsophlebiidae**

BYRSOPHLEBS GRAFFI Jensen [*Gamble*, 1893, p. 455 ; *von Graff*, 1882, p. 275 and 1913, p. 173]

Drake's I. low spring-tide ; amongst algae (F.W.G.)

Family **Astrotorhynchidae**

ASTROTORHYNCHUS BIFIDUS (McIntosh) [*Gamble*, 1893, p. 459, as *Pseudorhynchus* ; *von Graff*, 1882, p. 316 and 1913, p. 177]
Plymouth Sound (E.G.G.)

Family **Proxenetidae**

PROMESOSTOMA MARMORATUM (Schultze) [*Gamble*, 1893, p. 450 ; and *von Graff*, 1913, p. 191]

Not uncommon in tide-pools in Wembury B., Drake's I., and Redding Pt. (F.W.G.)

PROMESOSTOMA OVOIDEUM (O. Schmidt) [*Gamble*, 1893, p. 451 ; *von Graff*, 1882, p. 272 and 1913, p. 194]

Occasionally dredged near Duke Rk. (F.W.G.)

PROMESOSTOMA SOLEA (O. Schmidt) [*Gamble*, 1893, p. 452 ; *von Graff*, 1882, p. 273 and 1913, p. 195]

Abundant in dredging from all localities (F.W.G.)

PROMESOSTOMA AGILE (Levinsen) [*Gamble*, 1893, p. 454 ; *von Graff*, 1913, p. 196]

Among *Zostera* in Cawsand B. (F.W.G.)

PROXENETES COCHLEAR *von Graff* [*Gamble*, 1893, p. 457 ; *von Graff*, 1882, p. 279 and 1913, p. 189]

Plymouth Sound (E.G.G.)

PROXENETES FLABELLIFER Jensen [*Gamble*, 1893, p. 456 ; *von Graff*, 1882, p. 277 and 1913, p. 187]

Tide-pools on north side of Cawsand B. (F.W.G.)

PARAMESOSTOMA NEAPOLITANUM (*von Graff*) [*Gamble*, 1893, p. 458, as *Mesosotoma* ; *von Graff*, 1882, p. 310 and 1913, p. 198]

One specimen among *Fuci* on inner side of Breakwater (F.W.G.)

Family **Trigonostomidae**

TRIGONOSTOMUM ARMATUM (Jensen) [*Gamble*, 1893, p. 466, as *Hyporhynchus armatus* ; *von Graff*, 1882, p. 337 and 1913, p. 305]

Among *zostera* in Cawsand B. ; tide-pools Redding Pt. (F.W.G.) :
Tanks in Laboratory (E.G.G.)

TRIGONOSTOMUM PENICILLATUM (Schmidt) [*Gamble*, 1893, p. 467, as *Hyporhynchus* ; *von Graff*, 1882, p. 341 and 1913, p. 308]

One specimen among *Zostera* in Cawsand B. (F.W.G.)

Family **Polycystididae**

ACRORHYNCHUS CALEDONICUS (Claparède) [*Gamble*, 1893, p. 460; *von Graff*, 1882, p. 319 and 1913, p. 324]

Tide-pools near Picklecombe and Redding Pt.; less commonly in Wembury B. (F.W.G.)

POLYCYSTIS NAEGELI Kölliker [*Gamble*, 1893, p. 462, as *Macrorhynchus*]

Plentiful in August on inner side of Breakwater (F.W.G.)

POLYCYSTIS CROCEA (Fabricius) [*Gamble*, 1893, p. 463, as *Macrorhynchus*; *von Graff*, 1882, p. 324 and 1913, p. 330]

Dredged once in New Gds. (F.W.G.)

PHONORHYNCHUS HELGOLANDICUS (Metschnikoff) [*Gamble*, 1893, p. 464, as *Macrorhynchus*; *von Graff*, 1882, p. 328 and 1913, p. 338]

Once on New Gds. (F.W.G.)

Family **Gyratricidae**

GYRATRIX HERMAPHRODITUS Ehrenberg [*Gamble*, 1893, p. 465, as *Gyrator*; *von Graff*, 1882, p. 332 and 1913, p. 342]

Tide-pools on rocks in front of Laboratory; water sometimes brackish; in early winter, not in spring (E.G.G.)

Family **Fecampiidae**

FECAMPIA ERYTHROCEPHALA A. Giard [1886, p. 499; *von Graff*, 1913, p. 352]

Encysted stage common on all stony shores at low water (W.T.B., S.P.)

Order ALLOEOCOELA

Family **Plagiostomidae**

PLAGIOSTOMUM DIOICUM (Metschnikoff) [*Gamble*, 1893, p. 471; *von Graff*, 1913, p. 377]

Duke Rk., and Wembury B. (F.W.G.)

PLAGIOSTOMUM ELONGATUM (Gamble) [*Gamble*, 1893, p. 473; *von Graff*, 1913, p. 380]

Wembury B., among sand; Breakwater (F.W.G.)

PLAGIOSTOMUM PSEUDOMACULATUM (Gamble) [*Gamble*, 1893, p. 474; *von Graff*, 1913, p. 381]

Among weed-tubes of *Polydora caeca* in Hamoaze (F.W.G.)

PLAGIOSTOMUM SAGITTA (Uljanin) [*Gamble*, 1893, p. 474; *von Graff*, 1882, p. 88 and 1913, p. 371]

Tide-pool Redding Pt. (F.W.G.)

PLAGIOSTOMUM CAUDATUM Levinsen [*Gamble*, 1893, p. 475; *von Graff*, 1882, p. 389 and 1913, p. 374]

One specimen among *Zostera* in Cawsand B. (F.W.G.)

PLAGIOSTOMUM VITTATUM (Frey and Leuckart) [*Gamble*, 1893, p. 475 ; *von Graff*, 1882, p. 389 and 1913, p. 383]

Abundant littoral species in all localities ; egg capsules from Breakwater in September (F.W.G.) : the tanks in the Laboratory swarm with them (E.G.G.)

PLAGIOSTOMUM KORENI Jensen [*Gamble*, 1893, p. 476 ; *von Graff*, 1882, p. 392 and 1913, p. 385]

Breakwater and Redding Pt. ; tank in Laboratory (F.W.G.)

? PLAGIOSTOMUM SIPHONOPHORUM (Schmidt) [*Gamble*, 1893, p. 477]

A specimen from Millbay Ch. (F.W.G.)

PLAGIOSTOMUM GIRARDI (Schmidt) [*Gamble*, 1893, p. 477 ; *von Graff*, 1882, p. 394 and 1913, p. 363]

Low-spring tides, Wembury B. ; tide-pools north side of Cawsand B., not uncommon Duke Rk. and Millbay Ch. (F.W.G.)

VORTICEROS AURICULATUM (O. F. Müller) [*Gamble*, 1893, p. 478 ; *von Graff*, 1882, p. 399 and 1913, p. 389]

An abundant littoral species in all localities (F.W.G.)

VORTICEROS LUTEUM Hallez [*Gamble*, 1893, p. 479 ; *von Graff*, 1882, p. 401 and 1913, p. 391]

One specimen New Gds. ; one on inner side of Breakwater (F.W.G.)

Family **Pseudostomidae**

PSEUDOSTOMUM QUADRIOCULATUM (Leuckart) [*Gamble*, 1893, p. 483, as *Cylindrostoma* ; *von Graff*, 1913, p. 395]

Abundant among Florideae, Wembury B. (F.W.G.) : tanks in Laboratory (E.G.G.)

PSEUDOSTOMUM INERME (Hallez) [*Gamble*, 1893, p. 484, as *Cylindrostoma* ; *von Graff*, 1882, p. 414 and 1913, p. 399]

Duke Rk., Millbay Ch., Hamoaze (F.W.G.)

MONOOPHORUM ELONGATUM (Gamble) [*Gamble*, 1893, p. 485, as *Cylindrostoma* ; *von Graff*, 1882, p. 415 and 1913, p. 406]

Tide-pools, Wembury B. (F.W.G.)

MONOOPHORUM STRIATUM (von Graff) [*Gamble*, 1893, p. 486 ; *von Graff*, 1913, p. 401]

Duke Rk., a single specimen (F.W.G.)

Family **Allostomatidae**

ALLOSTOMA AUSTRIACUM (von Graff) [*Gamble*, 1893, p. 480 as *Enterostoma* ; *von Graff*, 1913, p. 418]

Common in Sound below 5 fms. (F.W.G.)

ENTEROSTOMUM FINGALIANUM Claparède [*Gamble*, 1893, p. 481 ; *von Graff*, 1882, p. 404 and 1913, p. 411]

Among Florideae, Wembury B. (F.W.G.)

Family **Monocelididae**

MONOCELIS LINEATA (O. F. Müller) [*Gamble*, 1893, p. 487, as *Monotus*; *von Graff*, 1882, p. 418 and 1913, p. 427]

Not uncommon amongst ulva, Redding Pt. (F.W.G.)

MONOCELIS FUSCA Oersted [*Gamble*, 1893, p. 488, as *Monotus*; *von Graff*, 1882, p. 421 and 1913, p. 425]

Abundant among *Balanus*, ulva, and generally throughout the littoral zone (F.W.G.)

MONOCELIS ALBA (Levinson) [*Gamble*, 1893, p. 489, as *Monotus*; *von Graff*, 1882, p. 424 and 1913, p. 432]

Tide-pools below Picklecombe Fort (F.W.G.)

MONOCELIS UNIPUNCTATA (Fabricius) [*Gamble*, 1893, p. 490, as *Automolus*; *von Graff*, 1882, p. 426 and 1913, p. 438]

Rarely among algae, Duke Rk. (F.W.G.)

MONOCELIS HAMATA Jensen [*Gamble*, 1893, p. 491, as *Automolus horridus*; *von Graff*, 1913, p. 429]

One specimen from Hamoaze (F.W.G.)

MONOCELIS GAMBELI von Graff [*Gamble*, 1893, p. 492, as *Automolus ophioccephalus*; *von Graff*, 1913, p. 433]

Millbay Ch. (F.W.G.)

Order TRICLADIDA

Family **Planariidae**

PROCERODES ULVAE (Oersted) [*Wilhelmi*, 1909, p. 316; *Gamble*, 1893, p. 493, as *Gunda*]

Shore W. of Reny Rocks, high-water mark, hundreds of egg capsules under the larger stones embedded in the gravel. Nov. 1913; Reny Reef, shore near high water, capsules on stones, young 4 or 5 in each capsule, 30.8.12; Wembury B., Church Reef, with egg capsules, under stones, 3.4.20; Reny Rocks near high-water mark, a great crowd of tiny specimens about 2 mm. when fully extended, very few above medium size, 3.11.21 (J.H.O.): Revelstoke, under stones lying in fresh water stream flowing into the sea, just below high-tide mark, in some numbers, 2.2.30, egg capsules numerous (G.M.S.): Estuary of fresh-water stream on Wembury Beach, 15-19.7.30, calm sea, neap tides, occurs from high-water neaps to low-water neaps, population maximal from the lower edge of the shingle to low-water neap level, rarely found under stones less than 6 inches diameter; only under sea-water about half an hour at the upper end of the range, water of stream p.H. 7.7, very hard water containing much Ca, Mg, Co₂ and SO₄; 28.7.30 to 1.8.30, rough sea, spring tide, occurrence as above but only extending half way up the shingle towards high-water (C.F.A.P.)*

*The following fresh-water organisms were found, 28.7.30-1.8.30, in the pool of the Procerodes river, just above high spring-tide level, into which waves were entering in rough weather (1 and 2.8.30):—*Polycelis cornuta* (Whitehead, H. 1921. Essex Naturalist, xx. p. 1); *Herpobdella atomaria* (= *Nephele vulgaris*) and *Glossosiphonia heteroclita* (= *Clepsine hyalina*) (Whitehead, H. 1913. Essex Naturalist, xvii. p. 61); *Rissoa ventrosa* Montagu (as described by Forbes and Hanley). (C.F.A.P.)

SABUSSOWIA DIOICA Claparède [*Wilhelmi*, 1909, p. 349; *Gamble*, 1893, p. 494, as *Fovia affinis*]

In a sandy creek, Wembury B. (F.W.G.): Cawsand B.; Whitsand B.; on drift weed (W.I.B.): from drift weed (*Fucus*, *Laminaria*) between Drake's I. and Island Buoy, about 200 specimens, 23.II.09 (A.J.S.)

Order POLYCLADIDA

Family **Leptoplanidae**

CRYPTOCELIS ALBA (Lang) [1884, p. 471]

Millbay Ch.; Mewstone; Amphioxus Gd., Nov. 1899 (W.I.B.): Confirmed by F.W.G.

LEPTOPLANA TREMELLARIS (O. F. Müller) [*Gamble*, 1893, p. 498; *Lang*, 1884, p. 476]

Generally, under stones and shells, from littoral zone to 15 fms. (F.W.G., W.I.B.): plentiful in July and August, scarcer in September, difficult to find in February (F.W.G.): Millbay Pit; about 2 m. S. of Mewstone; Yealm R. (W.I.B.): Plymouth 1921 (J.F.G.W.)

? LEPTOPLANA DROEBACHENSIS Oersted [*Gamble*, 1893, p. 503]

Plymouth Sound (F.W.G.)

LEPTOPLANA FALLAX (Quatrefages) [*Lang*, 1884, p. 492]

Millbay Ch. (F.W.G.): Millbay Docks, scrapings from piles, about 6 batches of eggs deposited in glass dish, sperms procured about a fortnight before, 17.II.14 (A.J.S.): very common Asia Sh. and Duke Rk., 23.8.21 (J.F.G.W.)

Family **Planoceridae**

STYLOCHOPLANA MACULATA Quatrefages [*Gamble*, 1893, p. 497; *Lang*, 1884, p. 459]

Cawsand B., common on trawled weed, July 1898 (W.I.B.)

Family **Euryleptidae**

PROSTHECERAEUS VITTATUS (Montagu) [*Gamble*, 1893, p. 504; *Lang*, 1884, p. 554]

Off Stoke Pt. (J.T.C.); Sound (W.G.) [F.W.G.]; Queen's Gd., occasionally; Yealm R., not uncommon, sometimes very large (W.I.B.)

SALCOMBE. Several specimens on shore at 16 ft. tide at the Salstone (E.J.A., R.A.T.), 1900, p. 189

CYCLOPORUS PAPILLOSUS Lang [*Lang*, 1884, p. 568; *Gamble*, 1893, p. 506]

On Ascidians and sponges dredged in Cattewater and outside Sound (F.W.G.): on Botryllus under stones below Laboratory (E.J.A.): Barn Pool, var. *laevigatus*; Mt. Edgcumbe; on *Fucus* with Botrylloids; Queen's Gd.; Duke Rk. (W.I.B.): common on Botryllus (S.P.): Rum B., 23.8.21 (J.F.G.W.)

CYCLOPORUS SP. (probably the above species) Cawsand B., on Botryllus, 11.7.12; on 22.7.12 laid eggs in glass jar, in which isolated eggs were laid in 10 different places in batches of 150 to 250; 29.7.12, eggs developed to Müller's larvae which are heliotropic. Another batch of eggs from different specimens, 19.8.12 (J.H.O.)

EURYLEPTA CORNUTA (O. F. Müller) [*Gamble*, 1893, p. 507 ; *Lang*, 1884, p. 572]

Occasionally dredged on Duke Rk. and in Yealm R. (F.W.G.) : Drake's I., N. Shore ; Yealm R. ; off the Mewstone, on gravel and rough ground ; Rame-Eddystone Gds. (W.I.B.) ; Asia Sh. ; Queen's Gd. ; etc. (S.P.)

OLIGOCADUS SANGUINOLENTUS (Quatrefages) [*Gamble*, 1893, p. 509]

Duke Rk. ; Millbay Ch. ; Cawsand B. ; Stoke Pt. (F.W.G.) : Queen's Gd. ; Mallard Sh. ; Mewstone 'Cellaria' and 'Echinoderm' Gds. ; Yealm R., common (W.I.B.) : what is probably this species laid 5 batches of eggs in a glass jar of which 5 specimens were isolated, eggs segmented to embryos, 6.8.12 (J.H.O.)

STYLOSTOMUM VARIABILE Lang [*Gamble*, 1893, p. 511]

Estuary of Yealm, Duke Rk., young stages between tide-marks at Redding Pt. and round Mallard Buoy in September (F.W.G.) : not uncommon on stony bottom in the Sound and Yealm R. ; Cawsand B. on drift weed ; Millbay Docks, on piles with *Ascidia* (W.I.B.) : fairly common Asia Sh., eggs deposited by one specimen from dorsal surface, 25.8.21 (J.F.G.W.)

Family **Prosthlostomidae**

PROSTHIOSTOMUM SIPHUNCULUS (Delle Chiaje) [*Lang*, 1884, p. 595]

Drake's I. (F.W.G.)

Class **TREMATODA**

Order HETEROCOTYLEA

AXINE BELONES Abildgaard [*Scott*, 1911, p. 69]

Gills of *Belone acus*, Plymouth (W.N.)

OCTOBOTHRUM MERLANGI (Kuhn) [*Lebour*, 1908, p. 40]

Gills of *Gadus merlangus*, Plymouth (W.N.)

OCTOCOTYLE SCOMBRI (Kuhn) [*van Beneden & Hesse*, 1863, p. 97]

Gills of *Scomber scombrus*, Plymouth (W.N.)

PSEUDOCOTYLE SQUATINAE van Ben. and Hesse [1864, App. 4, p. 161]

Skin of *Rhina squatina*, Plymouth (W.N.)

CALICOTYLE KROYERI (Diesing) [*Lebour*, 1908, p. 39]

Cloaca of *Raia circularis*, *R. montagui* and *R. clavata*, Plymouth (W.N.)

PTEROCOTYLE PALMATA (Leuckart) [*van Beneden & Hesse*, 1863, p. 107]

Gills of *Molva vulgaris*, Plymouth (A.J.S., M.V.L.)

PHYLLONELLA SOLEAE van Beneden and Hesse [1863, p. 70]

Skin of *Solea vulgaris*, Plymouth (A.J.S., M.V.L.)

Order MALACOTYLEA

Family **Allocreadiidae**

PODOCOTYLE ATOMON (Rudolphi) [*Odhner*, 1905, p. 320]

Intestine of *Gobius flavescens*, *Centronotus gunnellus*, *Cottus bubalis*, *Liparis montagui*, *Spinachia vulgaris*, *Gadus merlangus*, *Pleuronectes flesus*, *Scophthalmus norvegicus*, *Entelurus aequoreus*, *Anguilla vulgaris*, Plymouth (W.N.)

PODOCOTYLE REFLEXA (Creplin) [Odhner, 1905, p. 326]

Intestine of *Spinachia vulgaris* and *Onos mustela*, common, Plymouth (W.N.)

PODOCOTYLE SYNGNATHI Nicoll [1913, p. 238]

Frequent in intestine of *Syngnathus acus*, *Syngnathus typhle* and *Entelurus aequoreus*, Plymouth (W.N.)

LEBOURIA ALACRIS (Looss) [Nicoll, 1910, p. 332]

Frequent in intestine of *Ctenolabrus rupestris*, *Centrolabrus exoletus* and *Crenilabrus melops*, once only in *Labrus bergylla*, Plymouth (W.N.)

LEBOURIA VARIA Nicoll [Nicoll, 1910, p. 329]

Fairly common in intestine of *Callionymus lyra*, Plymouth (W.N.)

PERACREADIUM COMMUNE (Olsson) [Nicoll, 1910, p. 328]

3 specimens only in *Labrus bergylla* and *Crenilabrus melops* (W.N.)

PERACREADIUM GENU (Rudolphi) [Nicoll, 1910, p. 326]

Occurred twice in intestine of *Labrus bergylla*; one immature specimen in *Blennius pholis*, either belonging to this or the previous species, Plymouth (W.N.)

CAINOCREADIUM LABRACIS (Dujardin) [Johnstone, 1908, p. 136]

6 specimens in one *Morone labrax* (the only one examined), Plymouth (W.N.)

HELICOMETRA PULCHELLA (Rudolphi) [Nicoll, 1910, p. 336]

The commonest member of the family at Plymouth, in intestine of *Serranus cabrilla*, *Trigla hirundo*, *Gobius paganellus*, *Blennius pholis*, *Blennius gattorugine*, *Lepadogaster gouani*, *Labrus mixtus*, *Labrus bergylla*, *Ctenolabrus rupestris*, *Zeugopterus punctatus*, *Anguilla vulgaris*, *Conger vulgaris*; chiefly in gobies and blennies, Plymouth (W.N.)

STEPHANOCHASMUS CADUCUS Looss var. *luscii*(?) [Looss, 1901, p. 603]

Probably this species; in duodenum and pyloric coeca of *Gadus luscus*; immature specimen in *Gadus minutus*, Plymouth (W.N.)

STEPHANOCHASMUS CESTICILLUS (Molin) [Looss, 1901, p. 598]

Stomach of *Zeus faber*, 4 specimens, Plymouth (W.N.)

LEPIDAPEDON RACHION (Cobbold) [Odhner, 1905, p. 332]

Frequent in intestine of *Gadus pollachius*, Plymouth (W.N.)

LEPIDAUCHEN STENOSTOMA Nicoll [1913, p. 240]

2 specimens in intestine of *Labrus bergylla*, Plymouth (W.N.)

PHARYNGORA BACILLARIS (Molin) [Nicoll, 1910, p. 341]

Frequently in intestine of *Scomber scombrus*, *Gadus merlangus*, *Capros aper*, *Cyclopterus lumpus*, commonest in Scomber; late larva in tow-net. August (W.N.): in various coelenterates, *Obelia* (medusa), *Cosmetira pilosella*, *Leuckartiara octona*, *Phialidium hemisphericum*, *Pleurobrachia pileus*, also in Sagitta, spring and summer; free-swimming cercaria in tow-net, winter and spring, Sound and outside (M.V.L., 1916, p. 57, and 1917, p. 203)

Family **Fellodistomidae**

STERINGOTREMA CLUTHENSE (Nicoll) [1909 a, p. 472]

Duodenum of *Pleuronectes limanda* and *P. microcephalus*, Plymouth (W.N.)

STERINGOTREMA DIVERGENS (Rudolphi) [Odhner, 1911, p. 103]

In large numbers in duodenum of *Blennius ocellaris*, Plymouth (W.N.)

TERGESTIA LATICOLLIS (Rudolphi) [Odhner, 1911, p. 111]

Frequently in intestine of *Caranx trachurus*, Plymouth (W.N.)

Family **Zoogonidae**

ZOOGONOIDES VIVIPARUS (Olsson) [Odhner, 1902, p. 62]

Rectum and intestine of *Zeus faber*, *Blennius gattorugine*, *B. ocellaris*, *Solea vulgaris*, *Solea variegata*, Plymouth (W.N.): larval forms (sporocysts and cercaria) in *Buccinum undatum*, common, Plymouth (M.V.L.)

Family **Monorchidae**

MONORCHIS MONORCHIS (Stossich) [Looss, 1902 b, p. 117]

2 specimens in intestine of *Blennius gattorugine*, Plymouth (W.N.)

Family **Haploporidae**

SACCOCOELIUM OBESUM Looss [1902 a, p. 140]

A few specimens in intestine of *Mugil chelo*, Plymouth (W.N.)

HAPLOPORUS BENEDENI (Stossich) [Looss, 1902 a, p. 136]

A few specimens in intestine of *Mugil chelo* with *Saccocoelium obesum*, Plymouth (W.N.)

Family **Azygiidae**

PTYCHOGONIMUS MEGASTOMUS (Rudolphi) [Jacoby, 1899, p. 16]

Stomach of 4 out of 6 specimens of *Mustelus vulgaris*, Plymouth (W.N.)

Family **Hemiuridae**

HEMIURUS COMMUNIS Odhner [1905, p. 351]

Very common; stomach and intestine of *Capros aper*, *Lophius piscatorius*, *Cottus bubalis*, *Trigla hirundo*, *T. gurnardus*, *Gobius paganellus*, *Lepadogaster gouani*, *Gadus luscus*, *G. merlangus*, *G. minutus*, *G. pollachius*, *Ammodytes lanceolatus*, *Molva vulgaris*, *Zeugopterus punctatus*, *Entelurus aequoreus*, Plymouth (W.N.): larval form emerging from *Acartia clausi*, one specimen inside Sound Feb. 1923, one outside, May 1921 (M.V.L.)

HEMIURUS OCREATUS (Molin) [Odhner, 1905, p. 352]

Common in stomach of *Clupea pilchardus*; once in each of *Caranx trachurus*, *Capros aper*, *Scomber scombrus*, *Gadus merlangus*, *G. pollachius*, Plymouth (W.N.)

LECITHOCLADIUM EXCISUM (Rudolphi) [Looss, 1907, p. 131]

Stomach of *Scomber scombrus*, Plymouth (W.N.)

LECITHOCHIRIUM RUFOVIRIDE (Rudolphi) [Looss, 1907, p. 147]

Stomach of *Anguilla vulgaris*, *Conger vulgaris* and *Lophius piscatorius*, very common in first two species, Plymouth (W.N.): encysted stage in *Blennius pholis* (W.N.)

SYNAPTOTHIRIUM CAUDIPORUM (Rudolphi) [Looss, 1907, p. 150]

Stomach of *Trigla hirundo*, *Zeus faber* and *Lophius piscatorius*, Plymouth (W.N.): encysted larvae in a small *Labrus bergylla* with those of *Lecithochirium rufoviride* in the liver and intestinal wall; also 2 cysts were found in the intestinal wall of *Crenilabrus melops* (W.N.)

LECITHASTER GIBBOSUS (Rudolphi) [Looss, 1907, p. 164]

Intestine and rectum of *Serranus cabrilla*, *Caranx trachurus*, *Zeus faber*, *Trachinus vipera*, *Trigla hirundo*, *Gadus merlangus* and *Scophthalmus norvegicus*, Plymouth (W.N.)

DEROGENES VARICUS (O. F. Müller) [Odhner, 1905, p. 360]

Very common, stomach of *Mullus surmulletus*, *Pagellus centrodontus*, *Caranx trachurus*, *Capros aper*, *Zeus faber*, *Trachinus vipera*, *T. draco*, *Lophius piscatorius*, *Cottus bubalis*, *Agonus cataphractus*, *Callionymus lyra*, *Trigla hirundo*, *T. gurnardus*, *Cyclopterus lumpus*, *Blennius ocellaris*, *Gadus luscus*, *G. minutus*, *G. merlangus*, *G. pollachius*, *Molva vulgaris*, *Onos tricirratu*s, *Rhombus maximus*, *Pleuronectes flesus*, *P. limanda*, *Solea vulgaris*, *Salmo trutta*, *Conger vulgaris*, Plymouth (W.N.): late larva in Sagitta, one with ova (M.V.L.)

HEMIPERA OVOCAUDATA Nicoll [1913, p. 242]

Stomach of *Lepadogaster gouani*, Plymouth (W.N.)

DEROGENOIDES OVACUTUS Nicoll [1913, p. 243]

Once in stomach of *Trachinus draco*, Plymouth (W.N.)

Family **Bunoderidae**

BUNODERA NODULOSA (Zeder) [Looss, 1894, p. 33]

A few specimens in intestine of *Salmo trutta*, River Yealm (W.N.)

Family **Acanthochasmidae***Acanthochasmus imbutiformis* (Molin) [Looss, 1901, p. 632]

About thirty specimens in intestine of *Labrax lupus*; larval stage of what is probably this species encysted in gills of pipe-fish *Syngnathus typhle*; one larva among stomach contents of *Gadus merlangus*, Plymouth (W.N.)

Family **Bucephalidae**

BUCEPHALUS GRACILESCENS (Rudolphi) [Lebour, 1908, p. 28]

Very common in intestine of *Lophius piscatorius*, Plymouth (W.N.): sporocysts and cercaria in *Cardium edule*, 2 out of 3 dozen infected, River Yealm, 4.19.12 (J.H.O., M.V.L.): also frequently in other local *Cardium edule* (M.V.L.)

BUCEPHALUS MINIMUS (Stossich) [1887, p. 96]

Intestine of *Labrax lupus*, Plymouth (W.N.)

RHIPIDOCOTYLE MINIMA (Wagener) [Nicoll, 1909 b, p. 23, as *Gasterostomum triglae*]

Intestine of *T. gurnardus* and *T. hirundo*; also in pyloric coeca of *T. hirundo*, Plymouth (W.N.)

RHIPIDOCOTYLE VIPERAE (van Ben.) [Nicoll, 1914, p. 493]

Intestine of *Trachinus draco*, Plymouth (w.N.)

PROSORHYNCHUS SQUAMATUS Odhner [1905, p. 297]

Duodenum of *Cottus bubalis*, Plymouth (w.N.)

PROSORHYNCHUS ACULEATUS Odhner [Nicoll, 1910, p. 350]

Intestine of *Conger vulgaris*, Plymouth (w.N.)

PROSORHYNCHUS CRUCIBULUM (Molin) [Nicoll, 1910, p. 352]

Intestine of *Conger vulgaris* with *P. aculeatus*, Plymouth (w.N.)

LARVAL FORMS

SPELOTREMA EXCELLENS Nicoll [Lebour, 1912, p. 431]

Cercaria encysted in *Carcinus maenas*; very common, Plymouth (M.V.L.)

CERCARIA NEPTUNAEAE *sp. inq.* [Lebour, 1912, p. 440]

Very common in digestive gland of *Buccinum undatum*, trawling grounds, Plymouth (M.V.L.)

Class CESTODA

Order PSEUDOPHYLLIDAE

Family Amphicotyliidae

PARABOTHRIUM BULBIFERUM Nybelin [Woodland, 1927 a, p. 241]

3 specimens in intestines of 3 *Gadus pollachius*, Plymouth (w.N.F.W.)

Family Onchobothriidae

ACANTHOBOTHRIUM CORONATUM van Beneden [Woodland, 1927 b, p. 530]

From *Scyllium catulus*, Plymouth (w.N.F.W.)

ACANTHOBOTHRIUM DUJARDINI van Beneden [Woodland, 1927 b, p. 531]

Numerous specimens from *Raia maculata*, Plymouth (w.N.F.W.)

CALLIOBOTHRIUM VERTICILLATUM (Rudolphi) [Woodland, 1927 b, p. 530]

Numerous specimens from *Mustelus vulgaris*, Plymouth (w.N.F.W.)

ONCHOBOTHRIUM PSEUDO-UNCINATUM (Rudolphi) [Woodland, 1927 b, p. 531]

Several specimens from *Raia maculata*, Plymouth (w.N.F.W.)

Family Phyllobothriidae

ANTHOBOTHRIUM CORNUCOPIA van Beneden [Woodland, 1927 b, p. 527]

Two fully mature specimens and a number of free proglottides from *Galeus vulgaris*, Plymouth (w.N.F.W.)

SCYPHOPHYLLIDIUM GIGANTEUM (van Beneden) [Woodland, 1927 b, p. 525]

One specimen in spiral valve of *Galeus vulgaris*, associated with *Anthobothrium cornucopia*, Plymouth (w.N.F.W.)

DINOBOOTHRIUM SEPTARIA van Beneden [*Woodland*, 1927 a, p. 231]

Ripe proglottides in hind spiral valve intestine of a small *Lamna cornubica*, Plymouth (W.N.F.W.)

ECHENEIBOTHRIUM MACULATUM Woodland [*Woodland*, 1927 b, p. 519]

Fairly common in *Raia maculata*, Plymouth (W.N.F.W.)

ECHENEIBOTHRIUM VARIABLE van Beneden [*Woodland*, 1927 b, p. 522]

In *Raia clavata* and *Raia maculata*, Plymouth (W.N.F.W.)

ECHENEIBOTHRIUM FALLAX (van Beneden) [*Woodland*, 1927 b, p. 522]

In *Raia clavata* and *Raia maculata*, Plymouth (W.N.F.W.)

ECHENEIBOTHRIUM JULIEVANSIUM Woodland [*Woodland*, 1927 b, p. 524]

Single specimen in *Raia maculata*, Plymouth (W.N.F.W.)

ORYGMATOBOTHRIUM MUSTELI (van Beneden) [*Woodland*, 1927 b, p. 529]

More than 40 specimens from *Mustelus vulgaris*, Plymouth (W.N.F.W.)

PHYLLOBOTHRIUM UNILATERALE Southwell [*Woodland*, 1927 b, p. 528]

One specimen from *Rhina squatina*, Plymouth (W.N.F.W.)

Phylum **NEMATHELMINTHA**Class **NEMATODA**Family **Ascaridae**

ASCARIS AUCTA Rudolphi [*Schneider*, p. 47]

Intestine of Pollack *Gadus pollachius*, 2.4.13 (F.H.S.)

HETERAKIS FOVEOLATA, Rudolphi [*Schneider*, p. 74]

Intestine of *Pleuronectes platessa*, 3.4.13 (F.H.S.)

Family **Enoplidae**

ENOPLUS COMMUNIS Bastian [1865, p. 148 ; *de Man*, 1886, p. 14]

Tide-pools, Plymouth, immature, 7.4.13 (F.H.S.) : on *Corallina* and *Cladophora*, Wembury B., Church Reef, Jan. 1930 (J.S.C.)

ONCHOLAIMUS FUSCUS Bastian [*de Man*, 1886, p. 38]

Between tide-marks in shingly mud, Rum Bay, common, July-Aug. 1930 (M.V.L., identified by Prof. N. A. Cobb)

Phylum **NEMERTINI**

Order ANOPLA

Family **Tubulanidae**

TUBULANUS LINEARIS (McIntosh) [*Bürger*, 1895, p. 519, T. 1, fig. 2, as *Carinella*; 1904, p. 12]

Two specimens Duke Rk. 1892 (T.H.R.): several specimens inside Breakwater (Queen's Gds., Asia Sh., Millbay Pit, Duke Rk.); shallow-water form, 1910 (Wijnhoff, 1912, p. 409)

TUBULANUS POLYMORPHUS Renier [*Bürger*, 1895, p. 517, T. 1, figs. 4 and 10, as *Carinella*; 1904, p. 12]

One specimen Stoke Pt., 25 fms., 2.3.92 (T.H.R.): Mewstone "Amphioxus" Gds., 10.9.95; about half-way between Rame and Eddystone, 20.12.28; 4 m. W. of Eddystone, 9.4.00, one specimen on each occasion (W.I.B.): Eddystone and Rame Gds., once off the Breakwater, 1910 (Wijnhoff, 1912, p. 409)

SALCOMBE. On shore on the west side of the Salstone (Allen and Todd, 1900, p. 188)

TUBULANUS MINIATUS (Bürger) [*Bürger*, 1895, p. 521, T. 1, fig. 8, as *Carinella*; 1904, p. 12]

Three specimens Rame-Eddystone Gds., 45-55 fms., 11.8.10 (Wijnhoff, 1912, p. 410)

TUBULANUS NOTHUS (Bürger) [1895, p. 527, T. 1, fig. 12, as *Carinella*; 1904, p. 13, Rum Bay, Bridge and Queen's Gds., each one specimen; Asia Sh. and Millbay Pit, each 3 specimens, 1910 (Wijnhoff, 1912, p. 412): Duke Rk. one specimen, 16.8.21 (J.F.G.W.)

TUBULANUS SUPERBUS (Kölliker) [*Bürger*, 1895, p. 521, T. 1, figs. 5, 7, 9, 11 as *Carinella*; 1904, p. 13]

Six miles S.E. of Mewstone, one specimen (T.H.R.): sand-bank in Yealm (R.C.P., W.I.B.): Drake's I., Mewstone Gds., Rame to Eddystone and Eddystone Gds. (W.I.B.): Eddystone and Rame-Eddystone Gds., frequent; Asia Sh. one specimen, 1910 (Wijnhoff, 1912, p. 411)

SALCOMBE. Frequently found on the shore both in the Kingsbridge Estuary and in Salcombe Harbour; on both sides of the Salstone, on the shores at the N.E. end of Salcombe Harbour, as well as on the banks near the mouth, immediately to the north of Millbay; a specimen was obtained in dredge material from the channel between Salstone and Snape's Pt. (Allen and Todd, 1900, p. 188)

TUBULANUS ANNULATUS (Montagu) [*McIntosh*, 1873, p. 203, Pl. 8, fig. 1, as *Carinella*; *Bürger*, 1904, p. 14]

Not uncommonly dredged 5-20 fms. (T.H.R.): Millbay Ch. (W.I.B., R.A.T.): Queen's Gd., Asia Sh. (W.I.B., R.A.T., A.J.S.): Duke Rk., Yealm R., Mewstone Gds., 6 m. S.W. of Rame; Eddystone Gds. (W.I.B.): from nearly all dredging grounds inside and outside Breakwater, more commonly met with near Mewstone and Eddystone at a depth of at least 18 m., 1910 (Wijnhoff, 1912, p. 411)

SALCOMBE. Obtained by Mr. Beaumont in the *Zostera* banks between Ferry House and Millbay, Sept., 1898 (Allen and Todd, 1900, p. 188)

TUBULANUS ALBOCAPITATUS Wijnhoff [1912, p. 412]

Rame-Eddystone Gds., in 3 different dredgings, one in each haul, 1910 (Wijnhoff, 1912, p. 412)

Family **Callineridae****CARINESTA ANGLICA** Wijnhoff [1912, p. 413]

One specimen, River Yealm, L.W. in muddy sand bank ; one specimen crawling about in sand from Whitsand B., 1910 (Wijnhoff, 1912, p. 413)

Family **Cephalotrichidae****CEPHALOTRICH RUFIFRONS** (Johnston) [*Bürger*, 1895, p. 539, T. II, fig. 24, and T. VII, fig. 2, as *C. bioculata* Oersted ; 1904, p. 18]

Common between tide-marks, in clean, coarse sand and among corallines (T.H.R.) : Drake's I., Rum B., Mt. Edgcumbe (E.J.A., W.I.B.) : Millbay Ch. (W.I.B.) : north shore of Drake's I., 3 specimens ; Rum B., 18 specimens, 21.5.09 (A.J.S.) : common between tide-marks at Rum Bay, Mt. Edgcumbe, Drake's I., Mewstone ; in clean sand between corallines, under stones, etc., 1910 (Wijnhoff, 1912, p. 414)

Breeding : Apr. to Aug. : pelagic larvae as late as Dec. (T.H.R.)

CEPHALOTRICH LINEARIS (Rathke) Oersted [*Bürger*, 1895, p. 538]

Rum B. in sand between tide-marks ; dredged outside Breakwater (T.H.R.)

Breeding in March (W.G.)

Family **Baseodiscidae****POLIOPSIS LACAZEI** Joubin [1894, p. 82, Pl. 1, fig. 15 and 16 ; *Bürger*, 1904, p. 85]

One specimen, Eddystone, 1910 (Wijnhoff, 1912, p. 415).

BASEODISCUS CURTUS (Hubrecht) [*Bürger*, 1895, p. 601, Pl. 4, fig. 3, as *Eupolia* ; 1904, p. 82]

Off Borough I. ; off Prawle Pt. ; Eddystone Gds. (T.H.R., E.J.A.) : Millbay Ch., 2 specimens, Oct. 1900 (A.J.S.) : Queen's Gd., one small (R.A.T.) : Mewstone Ledge ; about 4 m. S. of Mewstone ; 2 m. W. of Eddystone (W.I.B.)

OXYPOLIA BEAUMONTIANA Punnett [1901, p. 555]

Dredged off Mewstone, 10.6.97 and 23.11.99, one specimen on each occasion (W.I.B., R.C.P.) : one specimen, Yealm, shore collecting, 11.5.10 (G.W.) : Mewstone E.N.E., Rame N. $\frac{1}{2}$ E. 25 fms. trawl, 27.8.20 (H.G.C.)

Family **Lineidae****LINEUS LONGISSIMUS** (Gunnerus) [*McIntosh*, 1873, p. 181, Pl. IX, as *L. marinus* Montagu ; *Bürger*, 1904, p. 93]

Dredged in Yealm and outside Breakwater, occasionally on shore (T.H.R.) : occasional specimens dredged and found on the shore from all parts of Sound · Wembury B. : Yealm ; Mewstone Ledge (W.I.B., R.A.T.) :

Eddystone Gds. (E.J.A.): rather common in dredgings from Sound, Mewstone and Yealm, 1910 (Wijnhoff, 1912, p. 415): eggs taken with adult, 22.3.20 (J.H.O.)

SALCOMBE. Several specimens dredged in channel between Salstone and Snape's Pt. (Allen and Todd, 1900, p. 188)

LINEUS BILINEATUS (Renier) [*Joubin*, 1894, p. 103, Pl. II, figs. 26 and 27; *Bürger*, 1904, p. 94]

Common 5 to 20 fms., especially at Duke Rk. (T.H.R.): occasionally in sand and gravel between tide-marks, Rum B. (W.I.B.): Drake's I. (R.A.T.): Yealm Sandbank (W.I.B., R.A.T., A.J.S.): dredged on all stony ground in Sound (W.I.B., R.A.T.): Yealm R.; S.W. of Penlee (1½ miles): Eddystone Gds. (W.I.B.): very common, especially in dredgings from Sound; from Rame-Eddystone Gds.; the Mewstone neighbourhood; also from the Cattewater and between tide-marks at the Yealm and Rum B., 1910 (Wijnhoff, 1912, p. 415): Duke Rk., 16.8.21, fairly common (J.F.G.W.): mussel bed off Neille Pt., R. Tamar, dredge, 3.10.28 (E.P.)

SALCOMBE. On the shore near mouth of Salcombe Harbour, common in clean sand (with a little *Zostera*) between Ferry House and Millbay on the eastern side; one on the western side under Marine Hotel, and one in fine mud to the North East of the Salstone (Allen and Todd, 1900, p. 188)

LINEUS LACTEUS Rathke [*Joubin*, 1894, p. 93, Pl. II, fig. 23; *Bürger*, 1904, p. 98]

North side of Drake's I., between tide-marks; Cawsand B., not common (T.H.R.): two specimens from Asia Sh. on one occasion, 1910 (Wijnhoff, 1912, p. 416): two specimens Portwrinkle Beach, Whitsand B. 5.6.20. hermaphrodite, full of ripe looking ova posteriorly and ripe sperm anteriorly with 9-8 and 11 and 12 eyes, but no tubercles even on head (J.H.O.): Rum B., 23.8.21 (J.F.G.W.)

LINEUS RUBER (Müller) [*McIntosh*, 1873, p. 188, Pl. V, fig. 2, as *L. sanguineus*; *Bürger*, 1904, p. 101]

Common everywhere in Sound between tide-marks (T.H.R., R.A.T.): Yealm (T.V.H.): Wembury B. (R.A.T.): common everywhere under stones at about mid-tide level (W.I.B.): between tide-marks very common in Cawsand B. and Rum B. and at Drake's I.; from New Gds. in dredgings, 1910 (Wijnhoff, 1912, p. 416): Rum B., 23.8.21 (J.F.G.W.): hard ground under stones R. Lynher up to beach 100 yds. above Antony Creek; R. Tamar in mussel bed off Neille Pt.; hand and dredge, 3.10.28, 30.9.28 (E.P.)

Breeding: Jan. (W.G.): Feb. (R.A.T.): March (T.H.R.)

MICRELLA RUFA Punnett [1901, p. 548]

Yealm Shore, low water, one (R.C.P.)

MICRURA FASCIOLATA Ehrenberg [*McIntosh*, 1873, p. 197, Pl. VI, fig. 2; *Bürger*, 1904, p. 105]

Common in Sound, especially Duke Rk. (T.H.R.): dredged from stony ground in all parts of Sound (W.I.B., T.V.H., R.A.T.): Rame-Eddystone Gds., Eddystone Gds. (W.I.B.): common in the dredgings from Sound,

Eddystone, Mewstone and Eddystone-Mewstone Gds. ; one from Stoke Pt., dredge, Mewstone and Mewstone Ledge, 1910 (Wijnhoff, 1912, p. 417) : very common (J.F.G.W.)

Breeding : Oct. to end of year (T.H.R.)

SALCOMBE. Several specimens dredged in the channel in Salcombe Harbour, none recorded higher up the Estuary (Allen and Todd, 1900, p. 188)

MICRURA AURANTIACA (Grube) [*McIntosh*, 1873, p. 201, Pl. VII, fig 4 ; *Bürger*, 1904, p. 105]

Between tide-marks, Wembury B., one specimen, 10.6.92 (T.H.R.) : Mewstone Ledge, Mallard, Queen's Gd., Yealm (dredged) (W.I.B.) : Asia Sh. (A.J.S.) : one specimen only from each locality. Two specimens from Breakwater (Wijnhoff, 1912, p. 417)

MICRURA PURPUREA (Dalyell) [*McIntosh*, 1873, p. 200, Pl. VII, fig. 3 ; *Bürger*, 1904, p. 106]

Common in Sound, especially Duke Rk. ; also outside Breakwater (T.H.R.) : in dredgings from stony ground in all parts of Sound (W.I.B., R.A.T.) : Yealm R., Mewstone Ledge, Eddystone Gds. (W.I.B.) : rather common in dredgings from Sound ; occasionally a specimen from Rame-Eddystone and Mewstone Amphioxus Gds., 1910 (Wijnhoff, 1912, p. 418) : very common, Asia Sh. and outside Sound (J.F.G.W.)

MICRURA CANDIDA *Bürger* [*Joubin*, 1894, p. 118, Pl. II, fig. 23 b ; *Bürger*, 1904, p. 106]

Stoke Pt., 10.11.92, one dredged (T.H.R.) : two specimens from Mewstone, two from Mewstone Ledge, 1910 (Wijnhoff, 1912, p. 418)

CEREBRATULUS FUSCUS (*McIntosh*) [1873, p. 196, Pl. VI, fig. 3, as *Micrura fusca* ; *Bürger*, 1904, p. 118]

Jennycliff B., Mallard and Cobbler Shoals, few (T.H.R.) : Mallard, Queen's Gd., Drake's I., Mewstone Gds. (W.I.B.) : Rum B. ; Millbay Ch. (R.A.T.) : Eddystone Gds., with *Lepralia foliacea* (W.I.B.) : in dredgings from Asia Sh., Queen's and New Gds., Millbay Ch., and once from Mewstone Ledge, 1910 (Wijnhoff, 1912, p. 419)

CEREBRATULUS PANTHERINUS Hubrecht [*Joubin*, 1894, p. 102 ; *Bürger*, 1904, p. 113]

One dredged off Stoke Pt. (T.H.R.)

CEREBRATULUS ROSEUS (Delle Chiaje) [*Bürger*, 1895, p. 658, T. VI, fig. 12 ; 1904, p. 112]

Specimens collected from Breakwater, May 1910 ; Salcombe (Millbay) by Mr. Potts 1908, Sound under Batten Castle, May 1902, one specimen each time ; one from Breakwater in a tube with *Micrura aurantiaca* (Wijnhoff, 1912, p. 419)

SALCOMBE. Millbay, 1908 (F.A.P.)

CEREBRATULUS ALLENI Wijnhoff [1912, p. 419]

One specimen, Yealm Sandbank, 1910 (G.W.)

Order ENOPLA

Family **Emplectonematidae**

EMPLECTONEMA GRACILE (Johnston) [*McIntosh*, 1873, p. 176, Pl. II, fig. 5, as *Nemertes*; *Bürger*, 1904, p. 22]

Breakwater, among *Laminaria* roots (T.H.R.): Drake's I. (R.A.T., W.I.B.): crevices in rocks, Cawsand B., 26.3.09 (W.O.R.K.): in dredgings from Mewstone; between tide-marks, Breakwater, Drake's I., Cawsand B.; far less common than *E. neesi*, 1910 (Wijnhoff, 1912, p. 423)

EMPLECTONEMA NEESI (Oersted) [*McIntosh*, 1873, p. 178, Pl. III, fig. 6, as *Nemertes*; *Bürger*, 1904, p. 22]

Abundant on Breakwater, rare elsewhere (T.H.R.): the Bridge, Drake's I., common (R.A.T., W.I.B.): Wembury B. (E.J.A., T.V.H.): crevice among rocks at low tide, Cawsand B., one specimen, 26.3.09 (W.O.R.K.): common between tide-marks in the Sound; from Breakwater and the Mewstone; occasionally in dredgings at a depth of from 10-15 fms., 1910 (Wijnhoff, 1912, p. 423)

Breeding: Feb. (R.A.T.): March to Oct. (T.H.R.): Drake's I. shore, extruding ripe eggs, 1.2.11; N. side of Breakwater extruding ripe eggs, 18.1.11 (A.J.S.)

EMPLECTONEMA ECHINODERMA (Marion) [*Bürger*, 1895, p. 545, T. II, fig. 3 and 11, as *Eunemertes*; 1904, p. 23]

Yealm, one specimen dredged 25.1.99, one from sand-bank, 1.2.00 (W.I.B.): Yealm at low water (R.C.P.): one specimen Millbay Pit, 1910 (Wijnhoff, 1912, p. 424): several specimens, mouth of R. Yealm (N. bank), spade, 3.3.15; several specimens mouth of R. Yealm, N. side, in *Zostera* bed, 1.4.15; 10-12 specimens commensal with *Leptosynapta inhaerens*, mouth of R. Yealm, N. shore, in *Zostera* bed, 7.3.16; one specimen shore, Wembury Church Reef (under stone), 20.3.16 (A.J.S.)

CARCINONEMERTES CARCINOPHILA (Kölliker) [*Joubin*, 1894, p. 212, Pl. III, fig. 81, as *Eunemertes*; *Bürger*, 1904, p. 25]

In tubes between the egg masses of *Carcinus maenas* and *Portunus depurator*, in 2 *Carcinus*, in several *Portunus*, dredged, 1910 (Wijnhoff, 1912, p. 424)

NEMERTOPSIS FLAVIDA (McIntosh) Beaumont [*McIntosh*, 1873, p. 170, Pl. IV, fig. 1, as *Tetrastemma flavida*; Beaumont, 1900 b, p. 817, as *N. tenuis*; including *N. tenuis* *Bürger*, 1904, p. 26]

Very common in Plymouth Sound, between tide-marks and from dredgings, especially Duke Rk., and Millbay Ch. (T.H.R.): Breakwater (between tide-marks), Asia Sh., Duke Rk., Millbay Ch., R. Yealm (dredging ground); both forms occur in R. Yealm and Millbay Ch. (W.I.B.): common in Sound, both from dredgings and between tide-marks; once from a dredging near Mewstone, 1910 (Wijnhoff, 1912, p. 425)

Family **Amphiporidae**

AMPHIPORUS LACTIFLOREUS (Johnston) [*McIntosh*, 1873, p. 156, Pl. I, fig. 1 and 2; *Bürger*, 1904, p. 38]

Common between tide-marks, under stones (T.H.R.): Drake's I. (E.J.A., T.V.H., R.A.T.): Rum B. (W.I.B.): Mt. Edgcumbe (E.J.A.): Wembury

B. (T.V.H.): in shallow water near the coast, and between tide-marks; from all dredging grounds in Sound; once from a dredging at the Mewstone Ledge, 18-27 metres, 1910 (Wijnhoff, 1912, p. 426): one specimen Rum B., 23.8.21 (J.F.G.W.): R. Tamar, under stones, edge of mud-flat near Warren Pt., above Saltash Bridge, one mile, 19.9.28 (E.P.)

Breeding: in early spring (T.H.R.): March (W.G.)

AMPHIPORUS DISSIMULANS Riches [1893, p. 10]

In considerable abundance, Millbay Ch. (T.H.R.): once between tide-marks, Drake's I.; dredged, Asia Sh., Millbay Ch. (common); R. Yealm (W.I.B.): dredged from all grounds in Sound and near Mewstone, 1910 (Wijnhoff, 1912, p. 427)

Breeding in spring and in Oct. (T.H.R.)

AMPHIPORUS PULCHER (Johnston) [*McIntosh*, 1873, p. 158, Pl. I, fig. 3; *Bürger*, 1904, p. 41]

Taken on one or two occasions on Eddystone Gds. (W.I.B.)

AMPHIPORUS ALLUCENS Bürger [1895, p. 568, Pl. IV, fig. 35 as var. of *A. pulcher*; 1904, p. 41]

One specimen from Mewstone Ledge (10-15 fms.); one from Rame-Eddystone Gds., 1910 (Wijnhoff, 1912, p. 428)

AMPHIPORUS BIOCULATUS McIntosh [1873, p. 163, Pl. VIII, fig. 3; *Bürger*, 1904, p. 40]

One specimen dredged in Millbay Ch., 18.11.92 (T.H.R.)

Family Drepanophoridae

DREPANOPHORUS SPECTABILIS (Quatrefages) [*Bürger*, 1895, p. 575, Pl. III, fig. 28; 1904, p. 51]

Among weeds dredged in Cawsand B., one specimen; dredged off Stoke Pt., four (T.H.R.): taken several times on Mewstone Ledge; Queen's Gd. (once); Eddystone Gds. (W.I.B.): Queen's Gd., Millbay Ch., Cawsand B. (R.A.T.): 5 m. S. of Mewstone (A.J.S.): mud 1 m. S. of Rame Hd., 5.9.11 (J.H.O.): one specimen Asia Sh., 16.8.21 (J.F.G.W.): Queen's and New Grounds; Mewstone Ledge, 1910 (Wijnhoff, 1912, p. 428)

Family Prostomatidae

PROSTOMA MELANOCEPHALUM (Johnston) [*McIntosh*, 1873, p. 165, Pl. II, fig. 1, as *Tetrastemma*; *Bürger*, 1904, p. 56]

Dredgings from Queen's Gds. and between stones from Cattewater, 20/28.8.10 (Wijnhoff, 1912, p. 429): mud-flat, under stones along edge of bank near Warren Pt., above Saltash Bridge, R. Tamar; Rat I.; 30.8.28, 19.9.28 (E.P.)

PROSTOMA CORONATUM (Quatrefages) [*Bürger*, 1895, p. 583, Pl. III, figs. 2 and 8, as *Tetrastemma*; 1904, p. 61]

Fairly common in all dredgings from Sound, Mewstone and Cattewater; once between tide-marks Rum Bay, 1910 (Wijnhoff, 1912, p. 430): most of Riches' *Tetrastemma melanocephalum* belong to this species.

PROSTOMA VERMICULUS (Quatrefages) [*Joubin*, 1894, p. 160, Pl. III, fig. 64, as *Tetrastemma*; *Bürger*, 1904, p. 62]

Rather common in dredgings from Asia Sh.; from some other dredging grounds in Sound, near Mewstone and Mewstone Ledge; once between tide-marks, Rum Bay, 1910 (Wijnhoff, 1912, p. 430): one specimen Asia Sh., 16.8.21 (J.F.G.W.)

PROSTOMA PELTATUM (Bürger) [1895, p. 580, Pl. III, fig. 6, as *Tetrastemma*; 1904, p. 57]

Two specimens from the Bridge, 12.5.10 (Wijnhoff, 1912, p. 430)

PROSTOMA LONGISSIMUM (Bürger) [1895, p. 584, Pl. III, fig. 15, as *Tetrastemma*; 1904, p. 62]

One specimen in a dredging from Mewstone, 13.7.10 (Wijnhoff, 1912, p. 431)

PROSTOMA ROBERTIANAE (McIntosh) [1873, p. 166, Pl. III, fig. 1, as *Tetrastemma*; *Bürger*, 1904, p. 63]

Rame-Eddystone, one specimen, 18.8.10 (Wijnhoff, 1912, p. 431)

PROSTOMA CANDIDUM (O. F. Müller) [*Bürger*, 1895, p. 586, Pl. III, figs. 13 and 19, as *Tetrastemma*; *Bürger*, 1904, p. 64]

Asia Sh. and Queen's Gds., not common, June, July, 1910 (Wijnhoff, 1912, p. 431): one specimen Asia Sh., one specimen Rum Bay, 16.8.21 (J.F.G.W.)

PROSTOMA FLAVIDUM (Ehrenberg) [*Bürger*, 1895, p. 585, Pl. III, fig. 20, as *Tetrastemma*; 1904, p. 64]

Queen's Gds., New Gds., Cattewater and Rame-Eddystone in dredgings, between tide-marks, Rum B., 1910 (Wijnhoff, 1912, p. 432)

PROSTOMA CEPHALOPHORUM (Bürger) [1895, p. 583, Pl. III, fig. 22, as *Tetrastemma*; 1904, p. 61]

Millbay Ch., Duke Rk. (T.H.R.): dredged Millbay Ch., Queen's Gd., Duke Rk., R. Yealm (W.I.B.): dredgings from New Gds., Bridge, Asia Sh. and Queen's Gds., a few specimens, 1910 (Wijnhoff, 1912, p. 432)

PROSTOMA AMBIGUUM (Riches) [1893, p. 19, as *Tetrastemma*]

Found Nov. 1902 (T.H.R.): common at all dredging and trawling grounds in Sound; Mewstone Gds.; Rame-Eddystone Gds., at a depth of 25-30 fms.; one of the commonest species, 1910 (Wijnhoff, 1912, p. 432)

PROSTOMA HELVOLUM (Bürger) [1895, p. 586, Pl. III, fig. 16, as *Tetrastemma*; 1904, p. 65]

Mewstone Ledge, Rame-Eddystone Gds., depth 10-30 fms., Aug. 1910 (Wijnhoff, 1912, p. 432)

PROSTOMA QUATREFAGESI Bürger [*Joubin*, 1894, p. 157, Pl. III, fig. 87, as *Tetrastemma armatum*; *Bürger*, 1904, p. 67]

One specimen, New Gds., 30.5.10 (Wijnhoff, 1912, p. 433)

PROSTOMA HEROUARDI Oxner [1908, p. 1, Pl. I, figs. 1-5]

Hulks in Sound, 4 specimens, 21.5.10 (Wijnhoff, 1912, p. 433)

OERSTEDIA DORSALIS (Abildgaard) [Bürger, 1895, p. 592, Pl. III, figs. 30 and 36; 1904, p. 71]

Very common in dredgings, especially in early summer among *Zostera* in Cawsand B. (T.H.R.): Queen's Gd., Millbay Ch. (R.A.T.): Asia Sh. (W.I.B., R.A.T.): Cawsand B. (R.A.T.): 5 m. S. of Penlee Pt. (R.A.T.): Eddystone Gds. (W.I.B., E.J.A.): found almost everywhere from shore down to 30 fms. or more; a yellow form (Bürger's var. *cincta*) abundant among *Cellaria* (W.I.B.): abundant everywhere in Sound, Rame-Eddystone Gds., and between weeds in Whitsand B.; several varieties in dredgings, v. *marmorata*, *viridis* and *cincta*, 1910 (Wijnhoff, 1912, p. 433): common 1921 (J.F.G.W.)

Breeding in autumn (T.H.R.): Sept., Oct., Nov. (W.G.)

OERSTEDIA NIGRA (Riches) [1893, p. 14, as *Tetrastemma*]

On *Codium* and other weeds from *Laminaria* zone (T.H.R.): Rum B. and Batten among corallines (W.I.B.)

OERSTEDIA IMMUTABILIS (Riches) [1893, p. 14, as *Tetrastemma*]

Coralline pools in Wembury B., many specimens; among weeds on shore and dredged at Duke Rk. (T.H.R.): six specimens, coralline and *Laminaria* roots, Rum B., 20.2.12 (A.J.S.)

Family Malacobdellidae

MALACOBDELLA GROSSA (O. F. Müller) [Joubin, 1894, p. 214, Pl. III, fig. 86; Bürger, 1904, p. 74]

In branchial cavity of *Cyprina islandica*, never more than one in a mollusc (T.H.R., S.P.): Eddystone trawling Gds., in fishes, one specimen, 11.7.16; three specimens in one *Cyprina* from a Plymouth trawler, working near Eddystone, 3.1.17, the first with more than one specimen in it (A.J.S.)

CHAETOGNATHA

SAGITTA ELEGANS Verrill [Ritter-Záhony, 1911 a, p. 11]

Present throughout the year, especially in spring and autumn; very abundant February, 1930 (F.S.R.)

Breeding: May, June (M.V.L., F.S.R.)

SAGITTA SETOSA J. Müller [Ritter-Záhony, 1911 a, p. 7]

Common, June, 1926; common October, 1929; a few February to June, 1930 (F.S.R.)

SAGITTA SERRATODENTATA Krohn [Fowler, 1905, p. 58]

Two specimens, ripe, taken May 7th, 1930, near Eddystone (F.S.R.)

(The above three species previously recorded together as *Sagitta bipunctata* Quoy and Gaimard)

SPADELLA CEPHALOPTERA (Busch) [Ritter-Záhony, 1911 b, p. 28]

In Laboratory Tanks, 25.7.11 (A.J.S.): Aug. (A.Me.)

Breeding: July (A.J.S.): Aug. (A.Me.)

Phylum **ANNELIDA**Class **ARCHIANNELIDA****TURBANELLA HYALINA** Max Schultze [1853, p. 241]

Found by Dr. C. Shearer on the glass of one of the Laboratory tanks, July 26th, 1909.

DINOPHILUS TAENIATUS Harmer [1889, p. 119]

In rock-pools in Sound far above low water in March and April, not found in June (Harmer, 1889). Found often in immense numbers in pools high up on the limestone rocks below the Laboratory and in front of West Hoe Terrace. Records kept by Mr. A. J. Smith between 1906-1910 from below the Laboratory show that it appears to be abundant from Nov. to Apr., but absent or very scarce between May and Oct. : further records by Mr. Smith 1911-1924 show the same. In Oct. 1925 none could be found by Mr. S. M. Nunn.

Maximum period of breeding seems to be the beginning of April (A.J.S.)

DINOPHILUS GYROCILIATUS Schmidt [*Shearer*, 1912, p. 337]

From sandy dredgings from Cawsand Bay. Can also be obtained in scrapings from the piles in Millbay Docks. Lived well in small aquaria and became established in the Laboratory tanks (Shearer, 1912, p. 342)

Breeds all the year round in the Laboratory tanks (c.s.)

PROTODRILUS FLAVOCAPITATUS Uljanin [*Pierantoni*, 1908, p. 167]

The first record at Plymouth is by Bles (*Journ. M.B.A.*, Vol. 2, 1892, p. 343) who reared it from tow-nettings taken in September. Adults have since been found in numbers at eleven different places between Salcombe and Looe, under stones and gravel near high-water mark where small fresh-water streams join the sea (Nature, Vol. 91, 1913, pp. 86 and 348) : below Tinside bathing pool, 30.3.23 (J.H.O.) : estuary of fresh-water stream on Wembury Beach, 15-19.7.30, calm sea, neap tides, moderately abundant from high-water neaps to low-water neaps ; 28.7.30, rough sea, spring tide, no *Protodrilus* found over same region ; 1.8.30, one specimen only found near low-water neaps (C.F.A.P.)

Breeding : ripe ova 31.3.23 (J.H.O.)

CTENODRILUS SERRATUS (O. Schmidt) = *C. pardalis* Claparède [1863, p. 25]

Found in the Laboratory tanks and also in pools at high-tide level below Laboratory by Dr. C. Shearer. Some years it is very abundant in the tanks, in other years it is absent (c.s.) : what is probably this species from Cattewater, Aug.-Sept. 1928, differs in certain characters and is much smaller (A.Me.)

NERILLA ANTENNATA Schmidt [*Goodrich*, 1912, p. 398]

First recorded by Miss F. Buchanan (Rep. Brit. Assoc., 1892, p. 358). Since found frequently in the Laboratory tanks, and also in scrapings from piles in the Cattewater.

Breeding : Jan., Feb.-June in Laboratory tanks (c.s.) : probably this species with numerous eggs, Nov. (J.H.O.) : depositing eggs in small tanks in the Laboratory, many, 5.11.30 (A.J.S.)

SACCOCIRRUS sp. [*Goodrich*, 1901, p. 413]

Found by Orton in Cawsand B., together with *Protodrilus*, amongst stones and gravel just below high-water mark where a small fresh-water stream joins the sea. He thinks the species different from *S. papillocercus* Bobretzky (*Nature*, Vol. 91, 1913, p. 348)

Breeding: Cawsand B. shore, 25-28.5.13. Larvae obtained (J.H.O.)

POLYGORDIUS LACTEUS Schneider [*Hempelmann*, 1906, p. 527]

Dredged in clean shell gravel off the Mewstone and near the west end of the Breakwater. In clean shell gravel near the Eddystone and off Bolt Head (E.J.A.)

HISTRIOBELLA HOMARI van Beneden [*Foettinger*, 1884, p. 435; *Shearer*, 1910, p. 287]

Usually found on the eggs of lobsters taken by fishermen, but normally an inhabitant of the branchial chamber (C.S.)

Breeding during the summer months (E.J.A.): Sept. (C.S.)

Class **CHAETOPODA**

Order POLYCHAETA

Family **Aphroditidae****APHRODITE ACULEATA** L. [*McIntosh*, 1900-1923, I, 2, p. 247]

On most of the fine-sand grounds off Plymouth, between 20 and 30 fms. (T.V.H., R.A.T., E.J.A.). S.S.W. of Eddystone to 42 fms. (Crawshay, 1912, p. 340)

Breeding: 28.11.21, 4. m. S.W. of Rame, spawn given off in clouds; 18.10.23, hundreds of opaque eggs which looked ripe, extruded in Aquarium tank (A.J.S.)

SALCOMBE. One small specimen from Millbay Sands (Hodgson in Allen & Todd, 1900, p. 190)

HERMIONE HYSTRIX (Savigny) [*McIntosh*, 1900-23, I, 2, p. 264]

Most frequently on gravel grounds in the neighbourhood of the Eddystone (Hodgson, 1900, p. 240); occasionally on similar ground in about 20 fms. (R.A.T., E.J.A.)

S.S.W. of Eddystone to 50 fms. on rough ground (Crawshay, 1912, p. 340)

LEPIDONOTUS SQUAMATUS (L.) [*McIntosh*, 1900-23, I, 2, p. 274]

Under stones and amongst weeds, hydroids, bryozoa, etc.; from low-tide mark to 30 fms. and over, common and widely distributed (Hodgson, 1900, p. 240)

S.S.W. of Eddystone to 42 fms. (Crawshay, 1912, p. 340)

SALCOMBE. Dredged in the channel between the Salstone and Snape's Pt., as well as in the channel in Salcombe Harbour. It was also obtained under the Marine Hotel (Hodgson, in Allen & Todd, 1900, p. 190)

LEPIDONOTUS CLAVA (Montagu) [*McIntosh*, 1900-23, I, 2, p. 280]

Everywhere on the shore under stones, especially at extreme low-water (Hodgson, 1900, p. 241); less frequently in dredgings from the Sound.

MALMGRENIA CASTANEA McIntosh [1900-23, I, 2, p. 379]

Commensal on the surface of *Spatangus purpureus* near the mouth of the echinoderm. Not uncommon (T.V.H., E.J.A.)

GATTYANA CIRROSA (Pallas) [McIntosh, 1900-23, I, 2, p. 285]

In dredgings from the neighbourhood of the Eddystone (Hodgson, 1900, p. 242). Yealm Sand Bank and East shore, commensal in tubes of *Amphitrite johnstoni* (E.J.A.)

SALCOMBE. Found on the shore living in the tubes of *Amphitrite johnstoni* on the Salstone, south of Halwell Point and near the mouth of Salcombe Harbour (under Marine Hotel) (Hodgson, in Allen & Todd, 1900, p. 190)

EUNOE NODOSA (M. Sars) [McIntosh, 1900-23 I, 2, p. 291]

One specimen from the stony ground off Prawle Point in 30 fms. (Weldon *Journ. M.B.A.*, Vol. 5, 1899, p. 478)

HARMOTHOE IMBRICATA (L.) [McIntosh, 1900-23, I, 2, p. 314]

Between tide-marks amongst Laminaria roots on the Breakwater; amongst hydroids, bryozoa, etc., on Eddystone Gds. (Hodgson, 1900, p. 245): rare (E.J.A.)

HARMOTHOE IMPAR (Johnston)=*Evarne impar* [McIntosh, 1900-23, I, 2, p. 353]

Common between tide-marks and amongst dredgings throughout the Plymouth area (T.V.H., E.J.A.): Eddystone Gds. (T.V.H.). S.S.W. of Eddystone in 40-42 fms. (Crawshay, 1912, p. 341): Mussel Bed off Neille Pt., R. Tamar, 3.10.28 (E.P.)

SALCOMBE. Dredged in the channel between Salstone and the mouth of Salcombe Harbour (Hodgson in Allen & Todd, 1900, p. 190)

HARMOTHOE AREOLATA (Grube) [McIntosh, 1900-23, I, 2, p. 349]

Not uncommon on Eddystone Gds., where the dredge or trawl brings up masses of bryozoa, hydroids and *Chaetopterus* tubes (Hodgson, 1900, p. 244)

HARMOTHOE SPINIFERA (Ehlers) [McIntosh, 1900-23, I, 2, p. 327]

Amongst dredgings from Millbay Ch., Queen's Gd., Asia Sh., etc., and Yealm R.: common (T.V.H., R.A.T., E.J.A.)

SALCOMBE. Dredged in the channel west of the Salstone, and between the Salstone and Snape's Pt. (Hodgson in Allen & Todd, 1900, p. 190)

HARMOTHOE LONGISETIS (Grube) [McIntosh, 1900-23, I, 2, p. 345 as *H. setosissima* (Savigny)]

Occasionally found among bryozoa (Cellaria) and *Chaetopterus* tubes from the Eddystone Grounds (Hodgson, 1900, p. 244): S.S.W. of Eddystone in 43-49 fms. (Crawshay, 1912, p. 341)

SALCOMBE. On the eastern shore of Salcombe Harbour (Hodgson, in Allen & Todd, 1900, p. 190)

HARMOTHOE FRASER-THOMSONI McIntosh [1900-23, I, 2, p. 337]

Two specimens S.S.W. of Eddystone in 49-51 fms. (Crawshay, 1912, p. 341)

HARMOTHOE LUNULATA (Delle Chiaje) [McIntosh, 1900-23, I, 2, p. 342]

A not uncommon tidal form. Found among roots of *Laminaria* on the Breakwater, and occasionally under stones near low water (Hodgson, 1900, p. 243)

SALCOMBE. On the shore of the bay, north of Pilworthy Pt. (Hodgson, in Allen & Todd, 1900, p. 190)

H. LUNULATA var. MARPHYSAE McIntosh [1900-23, I, 2, p. 339]

Found by Mr. R. A. Todd commensal with *Marphysa sanguinea* on the shore at Mt. Edgcumbe. A form which seems to resemble *H. marphysae* more closely than any other described species has been met with in fine sand in the Yealm Estuary. In one case the sand contained *Amphitrite johnstoni*, in another *Leptosynapta inhaerens*, and a definite association of the Harmothoe with the Synapta was actually observed in one instance (E.J.A.)

SCALISSETOSUS PELLUCIDUS (Ehlers) [McIntosh, 1900-23, I, 2, p. 372, as *S. communis*]

On the shore at Mt. Edgcumbe; amongst dredgings Millbay Ch. and Asia Sh. (R.A.T., E.J.A.)

SCALISSETOSUS ASSIMILIS (McIntosh) [1900-23, I, 2, p. 377]

Among spines of *Echinus esculentus* from Mewstone and Eddystone Gds. (T.V.H., R.A.T., E.J.A.)

LAGISCA EXTENUATA (Grube) including *L. elisabethae* McIntosh [Fauvel, 1923, p. 76; McIntosh, 1900-23, I, 2, p. 298, as *L. floccosa* (Savigny) = *L. propinqua* Malmgren, and as *L. elisabethae*, p. 303]

Between tide-marks and in dredgings throughout the whole area to 30 fms. (Hodgson, 1900, p. 247, as *L. floccosa*): at many stations S.S.W. of the Eddystone to about 50 fms. (Crawshay, 1912, p. 340, as *L. floccosa*): two varieties occur at Plymouth, one littoral and inshore, and a deeper water variety (E.J.A.): *L. elisabethae* is recorded from the shore at Wembury B. and Rum B., not uncommon (E.J.A.): Mussel bed off Neille Pt., R. Tamar, dredged, 3.10.28 (E.P.)

POLYNOE SCOLOPENDRINA Savigny [McIntosh, 1900-23, I, 2, p. 389; Marenzeller, 1874, p. 419, as *P. johnstoni*]

Commensal in tubes of *Polymnia nebulosa* on the shore at Mt. Edgcumbe; in dredgings from Asia Sh. (E.J.A.): one very good specimen trawled ca 2 m. N.W. of Eddystone, 20.6.12 (A.J.S.): Eddystone Gds. (Hodgson, 1900, p. 248)

POLYNOE CRASSIPALPA Marenzeller [1874, p. 412]

Occasional specimens are met with in Plymouth Sound (Allen, 1915, pp. 612 and 613)

LEPIDASTHENIA ARGUS Hodgson [1900, p. 250]

SALCOMBE. Found in the tubes of *Amphitrite edwardsi*, on the shore between Salcombe town and Sandhill Pt. (under Marine Hotel) (T.V.H.) : the species has since been taken on many occasions in the same locality and under the same conditions as originally described by Hodgson (E.J.A.) : 2 m. S.W. of Mewstone, 18 fms., in fine, muddy sand, one specimen, Petersen Grab. (G.A.S.)

HALOSYDNA GELATINOSA (M. Sars) [McIntosh, 1900-23, I, 2, p. 384]

Frequently met with on the shore under stones and amongst dredging and trawling material throughout the area, including the Eddystone Gds. (E.J.A.) : one specimen taken S.S.W. of Eddystone in 49 fms. (Crawshay, 1912, p. 341)

ACHOLOË ASTERICOLA (Delle Chiaje) [McIntosh, 1900-23, I, 2, p. 397]

In the ambulacral groove of *Astropecten irregularis*, common (T.V.H., R.A.T., E.J.A.)

STHENELAIS BOA (Johnston) [McIntosh, 1900-23, I, 2, p. 408]

Common in sand between tide-marks, Rum B., Drake's I., Mt. Edgcombe, Wembury B., Yealm R. (T.V.H., R.A.T., E.J.A.) : occasionally amongst dredgings from Millbay Ch. and Asia Sh. (T.V.H., E.J.A.) : Mewstone Gds. (T.V.H.)

Breeding : Rum B., 16.4.12 ; one out of 8 extruded eggs in a jar, 22.4.12 (A.J.S.)

SALCOMBE. On the Salstone and near the mouth of the harbour, between the Ferry House and Millbay ; never numerous. Dredged in the channel between Salstone and Snape's Pt. (Hodgson, in Allen & Todd, 1900, p. 191)

STHENELAIS LIMICOLA Ehlers (McIntosh, 1900-23, I, 2, p. 417)

One specimen in a coarse tow-net attached to the otter-trawl, 5 m. W.S.W. of Rame Head : one specimen dug in the sand bank in the upper part of the Yealm River (E.J.A.)

PHOLOË MINUTA (Fabricius) [McIntosh, 1900-23, I, 2, p. 437]

Common amongst dredging and trawling material over the whole Plymouth area, including Eddystone Gds. ; especially abundant in Millbay Ch. and on Asia Sh. (E.J.A.) : Millbay Ch., 13.6.11, about 100 fine specimens out of 3 basins of dredgings (A.J.S.) : Cargreen Landing, R. Tamar, one specimen, 17.8.28 (E.P.)

Family **Amphinomidae**

EUPHROSYNÉ FOLIOSA Audouin and Edwards [McIntosh, 1900-23, I, 2, p. 234]

Occasional specimens in dredgings from Queen's Gd., Asia Sh. and Millbay Ch. (T.V.H., R.A.T., E.J.A.) : Eddystone Gds. (E.J.A.) : one specimen 40 m. S. 24° W. of Eddystone in 49 fms. (Crawshay, 1912, p. 341) : one specimen after much search, Asia Shoal, Oct. 1927 (S.M.N.)

SPINTHER MINIACEUS Grube [McIntosh, 1900-23, I, 2, p. 232]

Half a dozen specimens living on a sponge dredged at Duke Rk., Feb. 6th, 1906.

Breeding : ripe females depositing eggs, Feb. 6th, 1906 (E.J.A.)

Family **Phyllodocidae**

PHYLLODOCE LAMELLIGERA (Gmelin) [*McIntosh*, 1900-23, II, 1, p. 76]

Between tide-marks, Drake's I.; Breakwater; in dredgings from Millbay Ch., Asia Sh., Duke Rk. (T.V.H., E.J.A.)

PHYLLODOCE PARETTI (Blainville) [*McIntosh*, 1900-23, II, 1, p. 82]

Occasional specimens in dredgings from the Mewstone Ledge (E.J.A.): off Stoke Pt. (S.P.)

PHYLLODOCE MACULATA (L.) [*McIntosh*, 1900-23, II, 1, p. 89]

Common in dredgings from the Sound and inshore waters, being sometimes present in very large numbers; it is much more abundant in summer than in winter; large specimens which seem to be the same species were found in clean sand at Wembury B. (E.J.A.): Rat. Is., R. Lynher, odd specimens, 30.8.28 (E.P.)

Breeding: Jan., Feb. (W.G.): Apr. to July. Eggs orange-brown or green (E.J.A.)

PHYLLODOCE RUBIGINOSA de St. Joseph [*McIntosh*, 1900-23, II, 1, p. 92]

Frequent in dredgings from Millbay Ch., Asia Sh. and other parts of the Sound; amongst dredge and trawl material from near Eddystone (E.J.A.): Crawshay obtained several specimens S.S.W. of Eddystone in 46-49 fms. (1912, p. 341)

EULALIA BILINEATA (Johnston) [*McIntosh*, 1900-23, II, 1, p. 50]

Frequent amongst dredgings from the Sound, especially from Millbay Ch. and Asia Sh.; dredged off Yealm Hd.; amongst roots of *Laminaria* from Cawsand B. (E.J.A.)

EULALIA AUREA Gravier [1896, p. 309]

Common on all the dredging grounds in Plymouth Sound; occasional specimens are met with on most of the grounds near shore, e.g., off Yealm Hd. (E.J.A.). Regarded by McIntosh and Fauvel as a variety of *E. viridis* but held to be distinct by Allen.

Breeding: with eggs Jan. to August (R.A.T., E.J.A.)

EULALIA ORNATA de St. Joseph [1888, p. 291]

In dredgings from the Sound, especially Millbay Ch. and Asia Sh.; much less frequent than *E. aurea* (E.J.A.). Allen regards it as a distinct species, McIntosh and Fauvel as a variety of *E. viridis*.

EULALIA VIRIDIS (O. F. Müller) [*McIntosh*, 1900-23, II, 1, p. 55]

Common on rocky shores in the Sound and on the Coast, usually amongst seaweeds to which the large gelatinous masses of green eggs are attached; occasionally taken in dredgings from the Sound, especially in an immature state, and specimens have even been taken on the Eddystone Gds. (E.J.A.)

Breeding: eggs in Jan. and Feb.; abundant in May and June. None found at end of July or in Aug. (A.J.S.)

SALCOMBE. From dredgings between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 193)

EULALIA TRIPUNCTATA McIntosh [1900-23, II, 1, p. 63 ; *de St. Joseph*, 1888, p. 285, as *E. clapedi*]

Not infrequent in dredgings from Millbay Ch., Asia Sh., and occasionally Queen's Gd. and Duke Rk. ; found also on the outer gds., e.g., off Yealm Head ; Cawsand B., among Laminaria roots from shore (E.J.A.)

Breeding : May, eggs brick red (E.J.A.)

EULALIA PUNCTIFERA (Grube) [*McIntosh*, 1900-23, II, 1, p. 53 as *Eulalia nebulosa* Montagu]

In dredgings from Millbay Ch., Asia Sh. and Yealm ; on shore at Mt. Edgcombe and in the Yealm Estuary (E.J.A.)

SALCOMBE. Dredged in the channel between the Salstone and Snape's Pt. (Allen & Todd, 1900, p. 193)

EULALIA (PTEROCIRRUS) MACROCEROS (Grube) [*McIntosh*, 1900-23, II, 1, p. 60]

Occasional specimens from dredging grounds in the Sound ; a number also taken in a dredging from 2 m. off Yealm Hd. (E.J.A.)

EULALIA (EUMIDA) SANGUINEA Oersted [*McIntosh*, 1900-23, II, 1, p. 66]

Common and generally distributed in dredging material throughout the area, especially in inshore waters ; frequent amongst Laminaria roots from the shore (E.J.A.)

Breeding : May to July ; eggs green, occasionally reddish (E.J.A.)

NOTOPHYLLUM FOLIOSUM (Sars) [*McIntosh*, 1900-23, II, 1, p. 46]

Frequent in dredgings from all the grounds in the Sound, and often met with on all the dredging and trawling grounds outside, including Eddystone Gds. (E.J.A.) : carrying eggs, Sep. 1927 (Y.O.)

ETEONE PICTA Quatrefages [*McIntosh*, 1900-23, II, 1, p. 100]

Occasional specimens from dredgings, Millbay Ch., Asia Sh., Queen's Gd., Barn Pool ; some large specimens amongst roots of Laminaria from the shore at Cawsand B. ; also taken on the shore at Wembury B. (E.J.A.)

MYSTIDES LIMBATA de St. Joseph [1887, p. 310]

Dredged off the Mewstone in 15-16 fms. Female with dark green eggs in May (J.T.C.) : not uncommon in dredgings from Asia Sh. and Queen's Gd. (New Gds.) ; in dredgings from Yealm R. (E.J.A.)

Breeding : between Melampus and New Gds., dredge, 30.6.14, one specimen with green eggs well developed (E.J.A.)

Family Tomopteridae

TOMOPTERIS HELGOLANDICA Greef [*Apstein*, 1900, p. 35]

Not uncommon in tow-nettings from the Channel (E.J.A.)

Breeding : carrying eggs, June 1914, Eddystone Gds. ; May 1919 (8-10 with eggs) (A.J.S.) ; July 15/16, 1925, Station L 4 midnight, about a dozen specimens carrying eggs (F.S.R. and A.J.S.)

Family **Hesionidae**

KEFERSTEINIA CIRRATA (Keferstein)=*Castalia fusca* (Johnston) [McIntosh, 1900-23, II, 1, p. 127]

On the shore under stones and amongst the roots of weeds from Drake's Island, Rum B. and Mt. Edgumbe; from the piles at Millbay Dock; amongst dredgings from Millbay Ch. and Asia Sh. (E.J.A.): Rat I., R. Lynher; Mussel bed, off Neille Pt., R. Tamar, common, 30.8.28, 3.10.28 (E.P.)

CASTALIA PUNCTATA (O. F. Müller) [McIntosh, 1900-23, II, 1, p. 121]

Common in dredgings from Millbay Ch. and Asia Sh.; occasionally from Duke Rk. and Queen's Gd.; a few specimens from rough grounds outside the Sound, e.g., 2 m. off Yealm Hd. and 2 m. S.W. by W. of Eddystone (E.J.A.): 17.5 m. S. 25° W. of Eddystone in 42 fms. (Crawshay, 1912, p. 340)

OXYDROMUS PROPINQUUS Marion and Bobetzky [1875, p. 51, as *Gyptis propinqua*; de St. Joseph, 1887, p. 321]

Not uncommon in dredgings from near New Gds. Buoy from Jan. to Apr. (E.J.A.)

Breeding: females with well-developed eggs, Jan. to Apr.: near the Eddystone, on edge of reef, Eddystone bearing S., dredge, 12.2.23, full of eggs (dredgings taken by Mr. Hunt) (E.J.A.)

OPHIODROMUS FLEXUOSUS Delle Chiaje [McIntosh, 1900-23, II, 1, p. 117]

Three or four specimens have been obtained from the Looe-Eddystone trawling gds.; in ambulacral groove of *Luidia ciliaris* from Rame-Eddystone grounds, one specimen 13.7.20 (E.J.A.)

SALCOMBE. Commensal in the tube of a young *Amphitrite edwardsi*, Zostera bed, Millbay (D.P.W.)

MAGALIA PERARMATA Marion and Bobretzky [1875, p. 54; McIntosh, 1900-23, II, 1, p. 136]

Not uncommon in dredgings from Millbay Ch., Asia Sh., Queen's Gd. and Duke Rk.; from trawl material, Rame-Eddystone gd.; from scrapings from piles at Millbay Dock (E.J.A.): Mussel bed off Neille Pt., R. Tamar; Cargreen Hard, few, dredge (E.P.)

Family **Syllidae**

SYLLIS (HAPLOSYLLIS) SPONGICOLA Grube [McIntosh, 1900-23, II, 1, p. 197]

Occasional specimens have been found in dredgings from Plymouth Sd. (Millbay Ch., Winter Sh., Cawsand B.); a considerable number of specimens were obtained from a mass of slimy sponge dredged on the Mewstone Ledge (E.J.A.): always found abundantly in Halichondria (dredged) and rarely in other sponges (Y.O.)

SALCOMBE. In dredgings from the channel between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 190 as *S. hamata*, Claparède).

Breeding: season lasts the whole summer. Males yellow and orange, the stolons deeply purple. Females generally of dark colour due to their contained eggs (Y.O.)

SYLLIS GRACILIS Grube [*McIntosh*, 1900-23, II, 1, p. 203]

Dredgings from Millbay Ch., Asia Sh. and Queen's Gd., single specimens frequently met with; Rum B. shore, from crevices of shale (E.J.A.): Rat I. above low water (E.P.). Fragments in nature, each fragment develops into a complete worm by regeneration (Y.O.)

SYLLIS (TYPOSYLLIS) KROHN Ehlert [*McIntosh*, 1900-23, II, 1, p. 192; *Langerhans*, 1879, p. 529]

Among Corallina from Rum B. and from under a stone at Wembury B. (E.J.A.)

Breeding: a specimen from Wembury B. in March had a well developed stolon with four red eyes (E.J.A.): Wembury Reefs (back of Mewstone) 3.4.16, one specimen with eggs (A.J.S., E.J.A.)

SYLLIS (TYPOSYLLIS) PROLIFERA krohn [*Langerhans*, 1879, p. 530; Claparède, 1864, p. 70 (530) as *Syllis armandi*; *McIntosh*, 1900-23, II, 1, p. 166 as *Pionosyllis hyalina* Grube and possibly in part, p. 161 as *Pionosyllis prolifera* Krohn]

Common everywhere amongst weeds, etc., on the shore, as well as in dredgings from shallow water, especially in Plymouth Sd. (E.J.A.): Mussel bed off Neille Pt., R. Tamar; Bull Pt., Hamoaze, dredge and hand, 19.8.28, 3.10.28 (E.P.)

Breeding: throughout the summer. Male stolon more or less deeply pigmented, female not so, its pale green colour is due to the contained eggs. Stolonisation takes place very easily and even repeats several times in the same animal in captivity (Y.O.)

SYLLIS (TYPOSYLLIS) VARIEGATA Grube [*Langerhans*, 1879, p. 532; *Marenzeller*, 1874, p. 147; *McIntosh*, 1900-23, II, 1, p. 161, as *Pionosyllis prolifera* (Krohn)]

Not uncommon in dredgings from Millbay Ch. and Asia Sh.; off Yealm Head; one large specimen from the shore at Wembury B. amongst Laminaria roots (E.J.A.): S. by W. of Eddystone in 44-49 fms. (Crawshaw, 1912, p. 340)

SYLLIS (TYPOSYLLIS) ARMILLARIS (Müller) [*McIntosh*, 1913, p. 83; 1900-23, II, 1, p. 188; II, 2, p. 238, as *S. alternosetosa*]

Eddystone Gds. (Weldon, in Allen, 1899, p. 481). A number of specimens from 20 to 50 m. S.S.W. of Eddystone in 42-49 fms. (Crawshaw, 1912, p. 339). Frequent on all dredging gds. in and around Plymouth Sd.; amongst ascidians from Millbay Dock; occasional specimens from the shore. This species was included in the 1904 list as *Typosyllis alternosetosa* de St. Joseph (E.J.A.)

SYLLIS (EHLERSIA) CORNUTA Rathke [*McIntosh*, 1900-23, II, 1, p. 200]

Eddystone Gds. (Weldon, in Allen, 1899, p. 481). Occasional specimens which are probably this species have been obtained from dredgings from Duke Rk., Queen's Gd. and Asia Sh., but the identification is not quite certain (E.J.A.)

TRYPANOSYLLIS ZEBRA (Grube) [*McIntosh*, 1900-23, II, 1, p. 169]

Frequent in dredgings from Millbay Ch. and Asia Sh.; occasionally from other parts of the Sound; Yealm dredging; on the shore at Wembury B., in a mass of yellow sponge (E.J.A.)

EURYSYLLIS TUBERCULATA Ehlers. = *Eurysyllis paradoxa* (Claparède) [*McIntosh*, 1900-23, II, 2, p. 241]

Occasional specimens from Asia Sh. dredgings and from dredgings on the rocky ground south of the Breakwater ; one or two from Laminaria roots from the shore at Reny Rocks (E.J.A.)

Breeding : a specimen with hinder segments swollen with genital products from Reny Rocks in July (E.J.A.)

ODONTOSYLLIS CTENOSTOMA Claparède [*McIntosh*, 1900-23, II, 1, p. 182]

Very abundant on the shores of the Sound and frequent in dredgings from the Sound (E.J.A.) : Mussel bed off Neille Pt., R. Tamar, dredge (E.P.)

Breeding : a specimen in the swimming stage with long setae was recorded in May (E.J.A.)

ODONTOSYLLIS FULGURANS Audouin and Edwards [*McIntosh*, 1900-23, II, 1, p. 178 ; *Fauvel*, 1923, I, p. 277]

Dredged at Queen's Gd. (New Gds.), Mewstone Ledge, off Stoke Pt. and on Rame Eddystone Gds. ; usually not more than one specimen on each occasion (E.J.A.)

ODONTOSYLLIS GIBBA Claparède [*McIntosh*, 1900-23, II, 1, p. 183]

Common in dredgings from Asia Sh., Duke Rk., Queen's Gd. and Millbay Ch. (E.J.A.)

PTEROSYLLIS FORMOSA Claparède = *Amblyosyllis lineata* Grube [*McIntosh*, 1900-23, II, 1, p. 225 ; *de St. Joseph*, 1886, p. 187, as *Pterosyllis* (*Gattiola*) *spectabilis* Johnston]

Common in dredgings from Millbay Ch. ; less numerous Queen's Gd., Mallard and Asia Sh. (E.J.A., R.A.T., T.V.H.) : sometimes in large numbers in sponges from Millbay Ch. (W.G.) ; occurs also among Laminaria roots from the shores of the Sound, in dredgings from outside the Breakwater, off Yealm Hd. and occasionally on Eddystone Gds. (E.J.A.) : Winter Sh., dredge (R.P.)

SALCOMBE. Dredged in the channel west of Salstone (Allen & Todd, 1900, p. 190)

SYLLIDES LONGOCIRRATA Oersted [*Fauvel*, 1923, I, p. 284]

Many specimens were taken in dredgings from Cattewater in December, 1919 (E.J.A.)

PIONOSYLLIS LAMELLIGERA de St. Joseph [1886, p. 163]

In dredgings from Duke Rk., New Gds., between Knap and Panther Buoys, and Mewstone Ledge. Amongst Laminaria roots from Reny Rocks (E.J.A.)

PIONOSYLLIS DIVARICATA Keferstein [*McIntosh*, 1900-23, II, 1, p. 164 ; *de St. Joseph*, 1886, p. 160 as *P. longocirrata*]

One specimen from dredgings from New Gds. ; one specimen, broken up, New Gds., dredge, 12.2.23 (E.J.A.)

EUSYLLIS BLOMSTRANDI Malmgren. = *E. tubifex* (Gosse) [*McIntosh*, 1900-23, II, 1, p. 173]

Allen, 1915, p. 598, says "probably the same as *E. blomstrandii* Malmgren as described by de St. Joseph (1886, p. 171) cf. Southern, 1914, p. 32." Very common in the Sound from the shore and in dredgings; often met with in dredgings from outside, e.g., Mewstone Ledge and Eddystone Gds. (E.J.A.)

Breeding: Females with ova and swimming bristles recorded in Feb. and March (E.J.A.)

EUSYLLIS MONILICORNIS Malmgren [*de St. Joseph*, 1886, p. 169, cf. Langerhans, *Wurmfauna von Madeira*, Zeits. Wiss. Zool. XXXII, 1879, p. 551]

Single specimens have been taken on a number of occasions from dredgings in the Sound, at Duke Rk. and Asia Sh.; one from Mewstone Ledge (E.J.A.). Considered as a distinct species by Allen (1915, p. 599), regarded as synonymous with *E. blomstrandii* by Fauvel (1923, I, p. 293)

GRUBEA CLAVATA Claparède [1863, p. 41, Pl. XIII, figs. 28-29; *de St. Joseph*, 1886, p. 200]

From Laminaria roots, Rum B. shore (E.J.A.)

GRUBEA LIMBATA Claparède [1868, p. 208; *Viguiér*, 1884, p. 103]

From Laminaria roots from the Breakwater and Reny Rocks; dredged near the east end of the Breakwater in 4 to 5 fms. (E.J.A.)

GRUBEA PUSILLA Dujardin [*Langerhans*, 1879, p. 565; *de St. Joseph*, 1886, p. 203]

Amongst the roots of Laminaria from Rum B. (E.J.A.)

Breeding: two females with embryos on the parapodia were seen in March (E.J.A.)

SPHAEROSYLLIS HYSTRIX Claparède [*McIntosh*, 1900-23, II, 1, p. 156]

Frequent in dredgings from the Sound; occasional specimens amongst roots of weeds from the shore (E.J.A.)

SPHAEROSYLLIS OVIGERA Langerhans [1879, p. 567]

In the Sound, near New Gds. Buoy; several specimens have been taken (E.J.A.)

SPHAEROSYLLIS ERINACEUS Claparède, *var.*: *de St. Joseph* [1886, p. 207]

Common among roots of Laminaria from Rum Bay (E.J.A.)

Breeding: a specimen in June had four large eggs on each segment, from Segt. 9 backwards (E.J.A.)

EXOgone GEMMIFERA Pagenstecher [*McIntosh*, 1900-23, II, 1, p. 151]

Common on the shore amongst the roots of Laminaria and other weeds, in the Sound and on the coast outside; frequent in dredgings from the Sound; it also occurs in dredgings from deeper water, e.g., 2 m. off Yealm Pt. in 15 fms. and off the Eddystone in 30-35 fms. (E.J.A.): shore above Ince Castle, R. Lynher, 1.8.28 (E.P.)

Breeding: A number of specimens found amongst ascidians from the piles in Millbay Dock in June carried eggs and embryos in different stages of development (E.J.A.)

AUTOLYTUS LONGEFERIENS de St. Joseph [1886, p. 217; *McIntosh*, 1900-23, II, 2, p. 245; *Southern*, 1914, p. 39]

Two specimens were dredged on rocky ground immediately S. of the Breakwater in May, one from Duke Rock in June and one was found amongst roots of *Laminaria* from Rum B. in June (E.J.A.). The male (*Polybostricus*) and female (*Sacconereis*) forms of this species were obtained in tow-nets near the Eddystone in Feb. : from one *Sacconereis* kept in the Laboratory, the young hatched two weeks after the specimen was procured (Allen, 1915, p. 604)

Stolons (female bud=*A. alexandri* Malmgren) are most abundant in Feb. (Y.O.)

AUTOLYTUS RUBROPUNCTATUS (Grube) : Marion and Bobretzky [1875, p. 44, as *Autolytus* (*Proceraea*) *ornatus*, *Southern*, 1914, p. 40]

Frequent in dredgings from the Sound, Asia Sh., Queen's Gd. and Duke Rk. ; frequent also on all the dredging and trawling gds. between Plymouth and the Eddystone and westwards to Looe (E.J.A.)

Breeding : no specimens with stolons were found amongst a large number examined between Jan. and June. At the beginning of July, one specimen was seen with a stolon just beginning to form (E.J.A.)

SALCOMBE. *Sacconereis*, West-Channel Plankton, Nov. 26, 1915 (E.J.A.)

AUTOLYTUS PICTUS (Ehlers) [*McIntosh*, 1900-23, II, 1, p. 211]

Frequently met with in dredgings from all grounds in Plymouth Sd. ; especially common amongst *Alcyonidium* and sponges from Asia Sh. ; occasional specimens on all grounds between Plymouth and the Eddystone, especially on rough ground (E.J.A.)

Breeding : three specimens with the *Polybostricus* head just commencing to form were found in dredgings from Asia Sh. in April (E.J.A.) : a *sacconereis*, carrying a mass of light green eggs in a sac was obtained in the plankton, Apr. 1927, the eggs hatched and larvae were reared for a time (D.P.W.) : there are two distinct forms (sub-species), the ordinary one is distinguished by white bands between two segments arranged in definite positions, certain distances apart, the other without these bands. The tentacles and dorsal cirri of the buccal segment of this sub-species are always purple in contrast with the orange colour of the other. The dentation is also more or less different. The differences in colour as well as in pattern are transmitted to the sexual buds. Either male or female. Worms in captivity produce readily sexual buds during summer while in winter they do not produce stolons in spite of being full of ripened eggs or spermatozoa (Y.O.)

AUTOLYTUS AURANTIACUS (Claparède)=*A. macrophthalma* (Marenzeller) [*de St. Joseph*, 1886, p. 226; *Southern*, 1914, p. 41]

Specimens have been obtained in dredgings from Millbay Pit, Asia Sh., New Gds., Tinker Buoy, and 1 mile off Rame Hd. (E.J.A.) : a single specimen of the *Sacconereis* was found in July in a tow-net (Y.O.)

AUTOLYTUS EHBIENSIS de St. Joseph [*McIntosh*, 1900-23, II, 2, p. 243 ; *de St. Joseph*, 1886, p. 228]

From Laminaria roots and sea weeds from the shore at Rum B., and amongst ascidians, etc., from Millbay Dock ; dredged off Yealm Hd. and near Eddystone ; Millbay Pit, 1.7.14 (E.J.A.)

Breeding : specimens with chains of buds in Jan., in Feb. and in Apr. (E.J.A.)

AUTOLYTUS PUNCTATUS de St. Joseph [1886, p. 233]

Not uncommon on Queen's Gd. and on the Rame-Eddystone and Looe-Eddystone trawling gds. (E.J.A.)

Breeding : specimens with stolons were taken from May to July. The breeding season probably extends considerably beyond these months (E.J.A.)

AUTOLYTUS EDWARDSI de St. Joseph [1886, p. 235]

This species is common in dredgings from Duke Rk. and the rocky ground immediately S. of the Breakwater. It often lives in tubes attached to the fronds and roots of Laminaria on which *Obelia* is growing (E.J.A.)

Breeding : specimens with stolons were found from Mar. to June and the breeding season probably extends beyond these months (E.J.A.) : specimens carrying a chain of stolons are still very abundant in July, Aug. and Sept. (Y.O.)

AUTOLYTUS PROLIFER (O. F. Müller) [*de St. Joseph*, 1886, p. 238 ; *Langerhans*, 1879, p. 575]

Two specimens from Millbay Pit dredgings and one from dredgings from the rocky ground south of the Breakwater (E.J.A.)

Breeding : a specimen in May had one stolon ; in July a female had many eggs in the body segments (E.J.A.)

AUTOLYTUS LUGENS de St. Joseph [1886, p. 234]

Three or four specimens in dredgings from Queen's Gd. and Millbay Pit (E.J.A.)

Breeding : in Jan. and Feb. the stolon was just beginning to form ; in July a large stolon was well developed (E.J.A.)

AUTOLYTUS INERMIS de St. Joseph [1886, p. 237]

Occasional specimens have been taken on the principal dredging grounds in the Sound, as well as on the trawling grounds between Plymouth and the Eddystone and Eddystone and Looe (E.J.A.)

Breeding : with stolons in Dec., Jan., Apr., May, and June ; one specimen in Aug. had no stolon (E.J.A.)

AUTOLYTUS CORNUTUS A. Agassiz [1862, p. 390, Pls. X and XI]

This American species appeared in Plymouth Sound during the summer of 1929 ; it is found abundantly (with *A. edwardsi*) on Laminaria covered with *Obelia* (Y.O.)

AUTOLYTUS ROSEUS Claparède [1864, p. 566, Pl. VII, fig. 4]

A specimen of this rare sacconereis was obtained in Feb. 1929 in a bottom stramin net, near the Eddystone (F.S.R., Y.O.)

MYRIANIDA PINNIGERA (Montagu) [*McIntosh*, 1900-23, II, 1, p. 229 ; *Malaquin*, 1893, as *M. fasciata* Milne-Edwards]

Frequently met with in Plymouth Sd. (w.g.) : dredgings from Millbay Ch., Asia and Queen's Gd. (T.V.H., R.A.T., E.J.A.) : amongst ascidians and sponges from the piles at Millbay Dock (R.A.T., E.J.A.) : feeds on the body fluid of living ascidia such as *Ascidiella aspersa*, *Phallusia mammillata*, etc., in winter the worms generally do not produce stolons, while in spring it is very unusual to find them without (Y.O.)

Breeding : Saltash Bridge, shrimp trawl, 2.2.14, with 3 buds ; mouth of Cattewater, shrimp trawl, 4.2.20, several with short strings of buds (A.J.S.)

SALCOMBE. On the shore at the Salstone and dredged in the channel to the west of the Salstone (Allen & Todd, 1900, p. 190)

VIRCHOWIA CLAVATA Langerhans [1879, p. 582, *Viguier*, 1886, p. 426]

New Gds., dredge, 22.10.22, no bud ; 4.3.22, Asia Sh., dredge (E.J.A.)

Breeding : Mar. female bud (E.J.A.) : a specimen producing the male bud was found in dredging from Sound, July 1929 (Y.O.)

PROCERASTEIA HALLEZIANA Malaquin [1893, p. 81]

Six specimens obtained from amongst ascidians from a raft moored in Cawsand B., 30.9.14 : July 1919, living in large numbers on the hydroid *Syncoryne eximia* which was growing luxuriantly on a floating pontoon in Millbay Dock ; in same position in the following winter and spring (Allen, 1921, p. 132) : present for a few weeks in quantity under the same conditions at Millbay Dock in September 1928 : Queen's Gds., 21.2.23, dredge, numerous specimens in tubes on *Tubularia indivisa*, most of them showing regeneration after fragmentation (E.J.A.)

Breeding : no stolons in Sept. 1914, but one specimen had 3 of the middle segments considerably enlarged ; active stolon formation in 1919 from July onwards, and in September 1928 (E.J.A.) : a sacconereis carrying 8 egg-sacs was obtained off the Eddystone, Oct. 1929 (Y.O.)

Family Nereidae

MICRONEREIS VARIEGATA Claparède [*McIntosh*, 1900-23, II, 2, p. 261 ; *Regnard*, 1913, p. 91]

Amongst weeds and coralina from the shore at Rum Bay ; from weeds dredged in Cawsand B. (E.J.A.)

LEPTONEREIS GLAUCA Claparède [*Ramsay*, 1914, p. 244]

From the piles of the wharf at Millbay Docks, fairly numerous ; heteronereid males in Feb., females filled with ova in Mar. (*Ramsay, loc. cit.*) : Mussel bed off Neille Pt., R. Tamar, dredge (E.P.)

NEREIS PELAGICA L. [*McIntosh*, 1900-23, II, 2, p. 267]

Frequent amongst weeds on rocky shores and from dredgings in all parts of the Sound ; also Wembury B. and Yealm R. (T.V.H., E.J.A.)

Breeding : Feb. 1927, fertilisations made and larvae reared (D.P.W.)

NEREIS ZONATA Malmgren [*Fauvel*, 1914, p. 177]

Common on the dredging and trawling grounds off Plymouth in depths of from 20-40 fms. ; recorded previously as *N. procera* Ehlers (*Journ. M.B.A.*, Vol. 5, 1899, p. 481) (E.J.A.) : dredged S.S.W. of the Eddystone in depths of 42-49 fms. (Crawshay, 1912, p. 342 as *N. pelagica*).

NEREIS IRRORATA (Malmgren) = *Nereis (Praxillea) schmardaei* Quatrefages [*McIntosh*, 1900-23, II, 2, p. 291 ; *de St. Joseph*, 1887, p. 263]

Not uncommon in coarse sand and gravel between tide-marks, Drake's Is., Mt. Edgcumbe, Jennycliff (rare), Wembury B., Yealm Estuary south shore ; small specimens amongst dredgings from Queen's Gd. and Asia Sh. (E.J.A.)

SALCOMBE. Common in muddy gravel under Marine Hotel ; also found on the east side of the harbour, and one specimen in Kingsbridge Estuary south of Halwell Pt. (Allen & Todd, 1900, p. 191)

NEREIS DIVERSICOLOR O. F. Müller [*McIntosh*, 1900-23, II, 2, p. 312]

Common in the mud flats of the Tamar and Plym estuaries, seldom in the Sound ; found only when the density of the water is low (E.J.A.)

Breeding : four specimens released eggs during preservation, 10.4.26 (S.M.N.)

SALCOMBE. Numerous only in a small gully traversed by a stream of fresh water which runs into Southpool Lake ; occasional specimens found in other parts of the harbour (Allen & Todd, 1900, p. 193)

NEREIS FUCATA Savigny [*McIntosh*, 1900-23, II, 2, p. 336]

In shells of *Buccinum undatum* inhabited by *Eupagurus bernhardus*, Mewstone Gds., Rame-Eddystone, Looe-Eddystone and Eddystone Gds. (E.J.A.) : found at two positions S.S.W. of Eddystone in 42-47 fms., associated with *Anapagurus laevis* by Crawshay (1912, p. 342) : S. Pace records a specimen from the Yealm R.

Breeding : May (w.g.) : several specimens full of eggs, south of Eddystone, trawl, brought in by fishermen, 20.5.15 : from a whelk shell containing *Eupagurus bernhardus* from Rame-Eddystone Gds., 8.2.23, a large specimen accidentally pricked gave out a number of spherical, ripe-looking transparent eggs from the hole (A.J.S.)

SALCOMBE. From a Hermit Crab on Millbay Sands (Allen & Todd, 1900, p. 193)

NEREIS (EUNEREIS) LONGISSIMA Johnston [*McIntosh*, 1900-23, II, 2, p. 325]

Occasional specimens in fine sand between tide-marks on Drake's Is. and Mt. Edgcumbe shore ; recorded by Cunningham from a mud-bank in the Cattewater near Oreston (E.J.A.) : 3 specimens dug from *Zostera* bed, S. side of R. Yealm, near mouth, 6.3.16, 7.3.16 (A.J.S.) : the *Heteronereis* stage is sometimes very numerous swimming in the Cattewater, the largest numbers being reported from near Laira Bridge ; it has also been reported as numerous in the Hamoaze and it generally swims at night (E.J.A.) : swimming at surface in Cattewater, Jan., Feb. ; Sutton Pool, Mar. off

Turnchapel Pier, about 1,000 at night ; opposite the hotel on the Yealm, on Amphitrite ground, dug up with eggs, Apr. (A.J.S.)

SALCOMBE. In fine muddy sand, especially abundant S. of Garston Pt. and on the S. side of the bay immediately below Halwell Point (Allen & Todd, 1900, p. 192)

PERINEREIS CULTRIFERA (Grube) [*McIntosh*, 1900-23, II, 2, p. 280 as Nereis]

Common on the shores around the Sound, Wembury B., Yealm Estuary, especially in muddy gravel ; young specimens frequent in dredgings (E.J.A.) : Rat Is., R. Lynher (E.P.)

Breeding : Rum Bay, 11.5.26, several specimens released eggs during preservation (S.M.N.) : one from opposite hotel on the Yealm, 13.4.26, discharged eggs in petri dish (A.J.S.)

SALCOMBE. Common all round the estuary excepting in very fine mud ; most common where soil is gravel mixed with sand and mud (Allen & Todd, 1900, p. 192)

PERINEREIS MARIONI (Audouin and Edwards) [*McIntosh*, 1900-23, II, 2, p. 295, as Nereis]

McIntosh (*loc. cit.*) records this species from Plymouth, probably in material sent from the Laboratory. Not seen personally by E.J.A.

PLATYNEREIS DUMERILI (Audouin and Edwards) [*McIntosh*, 1900-23, II, 2, p. 302, as Nereis]

Small specimens are common on all the dredging grounds of the Sound, the largest specimens coming from Queen's Gd. ; in dredgings from Yealm R. ; occasional specimens are obtained from the shores of the Sound and from Millbay Docks (E.J.A.)

Family Nephthydidae

NEPHTHYS CAECA (O. F. Müller) [*McIntosh*, 1900-23, II, 1, p. 8]

Large specimens on sandy shores, especially Drake's Is., Rum B. and Yealm Sand Bank (T.V.H., R.A.T., E.J.A.)

Breeding : Aug. (C.S.)

SALCOMBE. Only on the banks near the mouth of the harbour, being most numerous on the eastern sides (Allen & Todd, 1900, p. 193)

NEPHTHYS HOMBERGI Lamarck [*McIntosh*, 1900-23, II, 1, p. 17]

Shore between tide-marks especially in sand, Drake's Is., Rum B., Jennycliff B., Bovisand, Wembury B., Whitsand B., Yealm R. (R.A.T., E.J.A.) : dredged on Mewstone " Amphioxus " Gd. (R.A.T.) and Eddystone Gds. (T.V.H.) : widely distributed in mud, R. Tamar up to Pentillie Quay, R. Lynher, beach 100 yds. above Antony Crk., Aug.-Oct., 1928 (E.P.)

Breeding : June to Aug. (H. M. Fuchs, *Journ. Mar. Biol. Assoc.*, IX, 1911, p. 164)

SALCOMBE. One of the commonest shore polychaetes in Salcombe Estuary.

On all grounds except the finest mud (Allen & Todd, 1900, p. 193).

NEPHTHYS CIRROSA Ehlers [*McIntosh*, 1900-23, II, 1, p. 36]

In sand between tide-marks, Drake's Is. and Yealm Estuary (E.J.A.)

Family **Sphaerodoridae**

EPHESIA GRACILIS Rathke [*McIntosh*, 1900-23, III, 1, p. 47]

Frequently met with from all dredging grounds in the Sound and outside to the Eddystone Gds. ; most common Millbay Ch. and Asia Sh. ; also found on the shore between tide-marks, Drake's Is. and Mt. Edgcumbe (E.J.A.) : single specimens dredged on a number of grounds S.S.W. of Eddystone in 42-47 fms. by Crawshay (1912, p. 343)

SPHAERODORUM MINUTUM (Webster and Benedict) [*Southern*, 1914, p. 90]

Among Laminaria roots from Rum B., a number of specimens ; from material trawled in Cattewater (E.J.A.)

Family **Glyceridae**

GLYCERA LAPIDUM Quatrefages [*McIntosh*, 1900-23, II, 2, p. 477]

Between tide-marks Wembury B. and Drake's Is. (in shell gravel) ; dredged in shell gravel off the Mewstone and near Queen's Gd., not uncommon (E.J.A.)

SALCOMBE. The species recorded as *Glycera capitata*, dredged between the Salstone and Snape's Pt., is probably this form (Allen & Todd, 1900, p. 194)

GLYCERA GIGANTEA Quatrefages [*McIntosh*, 1900-23, II, 2, p. 482]=*Glycera siphonostoma* Delle Chiaje.

Between tide-marks, Drake's Is. (W.G., R.A.T.) : Mewstone *Amphioxus* Ground (E.J.A.)

GLYCERA CONVOLUTA Keferstein=*G. alba* Blainville [*McIntosh*, 1900-23, II, 2, p. 486]

The most common *Glycera* of the inshore waters. Between tide-marks Drake's I., Jennycliff B., Yealm Estuary ; in dredgings from Millbay Ch., Rame-Eddystone and Eddystone Gds. (E.J.A.) : *Glycera alba* Rathke, Rat Is., R. Lynher, one specimen in mud (E.P.) is probably this species.

Breeding : June-Aug. (H. M. Fuchs, *Journ. Mar. Biol. Assoc.*, IX, 1911, p. 164)

SALCOMBE. Nowhere abundant ; two or three specimens from the shore in Salcombe Harbour (Allen & Todd, 1900, p. 194)

GLYCERA ROUXI Audouin and M. Edwards [*McIntosh*, 1900-23, II, 2, p. 491]=*Glycera goësi* Malmgren.

On the shore at Drake's Is. and in other parts of the Sound, not uncommon ; dredged off Stoke Pt. and near the Eddystone (E.J.A.)

GONIADA MACULATA Oersted [*McIntosh*, 1900-23, II, 2, p. 462]

Occasional specimens from the shores of the Sound ; dredged in fine mud in the Sound (E.J.A.)

SALCOMBE. A few specimens from the shore near the mouth of the harbour on both sides (Allen & Todd, 1900, p. 194)

Family **Eunicidae**

EUNICE HARASSI Audouin and Edwards [*Fauvel*, 1914, p. 134; *McIntosh*, 1900-23, II, 2, p. 425 as *E. fasciata* Risso]

On the shore, Drake's Is., Rum B., Breakwater (R.A.T., E.J.A.): Wembury B. (E.J.A.): in dredgings from Duke Rk. (W.G., T.V.H.): Queen's Gd., Asia Sh., Millbay Ch. (R.A.T., E.J.A.): south of Breakwater Fort (W.G.): Rame Eddystone Gds. (E.J.A.): Crawshay obtained three specimens S.S.W. of the Eddystone in 40-42 fms. (Crawshay, 1912, p. 342)

Breeding: Ripe female, eggs opaque and separate, 14.8.11, Cawsand B. (H.M.F.)

EUNICE VITTATA Delle Chiaje [*McIntosh*, 1900-23, II, 2, p. 431]

McIntosh (*loc. cit.* p. 432) gives Plymouth as a locality on the authority of C. Spence Bate. One specimen dredged 16 m. S. 25° W. of the Eddystone in 42 fms. (Crawshay, 1912, p. 342)

MARPHYSA SANGUINEA (Montagu) [*McIntosh*, 1900-23, II, 2, p. 442]

Frequent on the shore in crevices of rock, especially on the bridge between Drake's Is. and Mt. Edgcumbe; also Rum B., Wembury B., Wembury and Yealm Estuary (W.G., T.V.H., R.A.T., E.J.A.): S. shore, mouth of R. Yealm, dug in Zostera bed (A.J.S.): Sound, two male specimens, one with active spermatozoa, the other with spermatozoa well formed, but only a few moving; one female with ripe eggs which ran out as single eggs when specimen was cut, 5.8.25 (E.J.A.)

SALCOMBE. A few specimens were found in different parts of the harbour; interesting as being the locality in which Montagu chiefly collected (Allen & Todd, 1900, p. 191)

MARPHYSA BELLI (Audouin and Edwards) [*McIntosh*, 1900-23, II, 2, p. 448]

On the shore between tide-marks, N. side of Drake's Is. and Rum B.; very common in the Zostera beds at the mouth of the Yealm R. (E.J.A.)

SALCOMBE. Specimens were obtained on the Salstone and near the mouth of Salcombe Harbour (under Marine Hotel) (Allen & Todd, 1900, p. 191)

LYSIDICE NINETTA Audouin and Milne-Edwards = *Lysidice punctata* (Risso) [*McIntosh*, 1900-23, II, 2, p. 456]

Frequent in Plymouth Sound, on the shore between tide-marks (Rum B., Drake's Is.), and in dredgings (Asia Sh., Millbay Ch., Queen's Gds.); on the shore at Wembury B. and Reny Rocks; dredged in Yealm R. (E.J.A.)

NEMATONEREIS UNICORNIS (Grube) [*McIntosh*, 1900-23, II, 2, p. 453]

Between tide-marks, N. side of Drake's Is., Mt. Edgcumbe and Yealm Sand-bank; amongst dredgings from Queen's Gd., Asia Sh. and Millbay Ch. (E.J.A.)

ONUPHIS CONCHYLEGA Sars [*McIntosh*, 1900-23, II, 2, p. 404, as *Onuphis britannica* McIntosh]

On coarse shell-gravel grounds in depths from 20 to 30 fms., off the Mewstone, off Stoke Pt., S. of Rame Hd. and off the Eddystone (E.J.A., R.A.T.): found at several positions S.S.W. of the Eddystone in depths of 42-44 fms. by Crawshay (1912, p. 342)

HYALINOECIA TUBICOLA (O. F. Müller) [*McIntosh*, 1900-23, II, 2, p. 419]

Common on muddy gravel gds. from 20 to 30 fms. ; off the Mewstone Rame-Eddystone and Eddystone Gds. (E.J.A., R.A.T.) : common and widely distributed on the area S.S.W. of the Eddystone at depths of 40-52 fms. (Crawshay, 1912, p. 342)

HYALINOECIA BILINEATA Baird=*H. sicula* Quatrefages [*McIntosh*, 1900-23, II, 2, p. 417]

Dredged from shell-gravel ground off Yealm Hd. (E.J.A.)

LUMBRICONEREIS IMPATIENS Claparède [*McIntosh*, 1900-23, II, 2, p. 379]

Occurs in dredge and trawl material from the Rame-Eddystone, Looe-Eddystone and Mewstone Gds., especially from gravel ; very abundant on Queen's Gd. in the spring of 1903 (E.J.A.)

LUMBRICONEREIS FRAGILIS (O. F. Müller) [*McIntosh*, 1900-23, II, 2, p. 372]

Two specimens (both incomplete) from a depth of 47-49 fms. S.S.W. of the Eddystone are provisionally referred to this species by Crawshay (1912, p. 342)

LUMBRICONEREIS LATREILLI (Audouin and Edwards) [*McIntosh*, 1900-23, II, 2, p. 376]

Shores of the Sound between tide-marks (Drake's Is., Mt. Edgcumbe, Rum B.) ; amongst dredgings from Millbay Ch., Asia Sh., Queen's Gd., Yealm R. and Eddystone Gds. (E.J.A.)

SALCOMBE. A number of specimens on the west side of the harbour under the Marine Hotel ; a few were found in other parts of the estuary (Allen & Todd, 1900, p. 191)

ARABELLA IRICOLOR (Montagu) [*McIntosh*, 1900-23, II, 2, p. 395]

Occasional specimens at low-water mark on the shores of the Sound and Wembury B. (E.J.A.)

STAUROCEPHALUS RUBROVITTATUS Grube [*McIntosh*, 1900-23, II, 2, p. 353]

Frequent in dredgings from Millbay Ch., Queen's Gd., Asia Sh., Duke Rock ; also taken 2 miles off Yealm Head (E.J.A.)

STAUROCEPHALUS RUDOLPHI (Delle Chiaje)=*S. ciliatus* (Keferstein) [*Ehlers*, 1864-1868, p. 434]

Recorded once from Queen's Gd. dredging ; no further specimens have been obtained since the one entered in the first list. The specimen has four eyes, an anterior pair of large eyes and a posterior pair of small ones, as described by Ehlers and Keferstein. In this respect it differs from the *S. ciliatus* of McIntosh (McIntosh, 1900-23, II, 2, p. 359) which is described as having two eyes, black, large and distinct (E.J.A.) : *S. pallidus* Langerhans (1879, 1880), p. 300 ; McIntosh, 1900-23, II, 2, p. 363) is recorded once from Asia Sh. (E.J.A.). It resembles *S. rudolphi* (= *S. ciliatus*) excepting for the absence of the posterior pair of eyes (E.J.A.) (Fauvel (1923, p. 446) regards it as synonymous with *S. rudolphi*)

OPHRYOTROCHA PUERILIS Claparède and Mecznirow [*McIntosh*, 1900-23, II, 2, p. 364]

Frequently met with in dredgings from the Sound, especially from Asia Sh.; sometimes very numerous in dredgings from the Cattewater; often common in the Laboratory tanks (E.J.A.): thousands from mouth of Cattewater (A.J.S.)

Breeding: Aug. (W.G.): 2 specimens from Millbay Docks (W. Wharf, scraped from piers) laid eggs in a dish, 7.4.13; spawned in laboratory tanks, 6.4.16, 8.4.18, 28.8.24, in numbers; 12.10.18, 23.12.18, 20.12.21, eggs and young in a bell jar in which Dr. Orton had had oysters in oil residue (A.J.S.): ripe eggs in tanks, 22.4.12 (J.H.O.)

Family Ariciidae

ARICIA CUVIERI Audouin and Edwards [*McIntosh*, 1900-23, II, 2, p. 497]

Occasional specimens dredged off the Mewstone (E.J.A.)

SCOLOPLOS ARMIGER (O. F. Müller) [*McIntosh*, 1900-23, II, 2, p. 510]

In dirty sand and between layers of shale at Rat Island (Hamoeze) (W.G.): in sand at Drake's Is., Rum B. and the Yealm Estuary (E.J.A.)

SALCOMBE. A few specimens were found in the Zostera banks near the mouth of the harbour, on both the east and west sides (Allen & Todd, 1900, p. 194)

Family Spionidae

SCOLECOLEPIS GIRARDI (Quatrefages) = *S. vulgaris* (Johnston) of McIntosh [1900-23, III, 1, p. 156]

Occasional specimens from Rum B. (E.J.A.)

SCOLECOLEPIS FULIGINOSA (Claparède) [*McIntosh*, 1900-23, III, 1, p. 160]

Very numerous in places in black mud at Rum B., Wembury B. and Yealm Estuary (E.J.A.): R. Tamar, Neille Pt. in small pool at half tide (E.P.)

SALCOMBE. One small one dredged between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 194 as *Nerine vulgaris*)

NERINE FOLIOSA (Audouin and Edwards) [*McIntosh*, 1900-23, III, 1, p. 142]

Wembury B. (T.V.H.): in sand between tide-marks on the east side of Drake's Is., on the eastern side of the Sound, on Kingsand Beach (Cawsand B.), Yealm Sand-bank, occasional specimens in each locality (E.J.A.): Rat Is., R. Lynher in mud (E.P.)

SALCOMBE. One specimen from the shore on the east side of the harbour (Allen & Todd, 1900, p. 194 as *N. coniocephala*)

NERINE CIR RATULUS (Della Chiaje) [*McIntosh*, 1900-23, III, 1, p. 148]

In fine gravel and sand between tide-marks on the eastern side of Plymouth Sound, occasional specimens only; Whitsand B., fine sand, 2 specimens (E.J.A.)

SALCOMBE. One specimen was obtained on the shore on the west side of the harbour, under the Marine Hotel (Allen & Todd, 1900, p. 194)

LAONICE CIRDATA (Sars) [*McIntosh*, 1900-23, III, 1, p. 164]

McIntosh (*loc. cit.*) gives Plymouth as a locality on the authority of Spence Bate and Brooking Rowe. Mewstone 342° 2½ miles, 24 fms., 15.8.28, conical dredge, one specimen (incomplete) (G.A.S.)

AONIDES OXYCEPHALA (Sars) [*McIntosh*, 1900-23, III, 1, p. 186]

In the Zostera bed at low-water mark, eastern shore of Yealm mouth, very numerous; Yealm sand-bank, occasional specimens; Rum B. and Wembury B., in crevices of shale; in sand at Wembury B. (E.J.A.)

Breeding: eggs near maturity, 19.1.11, reef at Bovisand between layers of slate in mud: 3.2.11, Rum B. below rifle butts in shale and mud, shore collecting (J.H.O.)

SPIO FILICORNIS Fabricius [*McIntosh*, 1900-23, III, 1, p. 172]

In fine, clean sand at Wembury B., at low tide (E.J.A.)

PYGOSPIO ELEGANS Claparède [*McIntosh*, 1900-23, III, 1, p. 189]

Forming tubes in very fine sand near the mouth of the River Yealm (E.J.A.): R. Lynher shore, above Ince Castle (E.P.)

Breeding: Mar. (E.J.A.)

SALCOMBE. Abundant on the shore under the Marine Hotel, forming long, slender tubes or galleries of mucus covered with sand grains (Allen & Todd, 1900, p. 194 as *Spio seticornis*). These showed gills on the second setigerous segment which according to Fauvel is a character of the male.

POLYDORA CILIATA (Johnston) [*McIntosh*, 1900-23, III, 1, p. 198]

Boring in limestone of the Breakwater and in limestone dredged in Millbay Channel; boring in shells of *Purpura* and *Littorina* from Yealm Sand-bank; frequently found in oyster shells (E.J.A.): widely distributed R. Tamar up to ½ m. above Halton Quay; R. Lynher up to mud flat above St. German's Bridge, in mud, cracks in rocks, shells of *Ostrea* and *Balanus* (E.P.)

Breeding: eggs laid in sacs attached to the sides of the parents' burrows; sacs found from Jan. to Oct., most common about Mar. 1927, in shells of oysters from Yealm Estuary (Wilson, 1928, p. 569)

POLYDORA FLAVA Claparède [*McIntosh*, 1900-23, III, 1, p. 205]

At Rum B. and Rat. Is. (Hamoaze) common in crevices of shale (W.G.): in holes in limestone below the Laboratory and in dredgings from Yealm River (E.J.A.)

Breeding: Feb. (W.G.)

POLYDORA CAECA (Oersted) [*Mesnil*, 1896, p. 191]

Eddystone Gds. (T.V.H.): on the shore at Rum B. in crevices of shale (E.J.A.)

POLYDORA HOPLURA Claparède [*McIntosh*, 1900-23, III, 1, p. 212]

Boring in limestone on the Plymouth Breakwater (E.J.A.): Mussel bed off Neille Pt., R. Tamar (E.P.)

Breeding: egg sacs found from June to Oct., 1927, in shells of oysters

from the Yealm Estuary (Wilson, 1928, p. 578)

Family **Magelonidae**

MAGELONA PAPILLICORNIS Fr. Müller [*McIntosh*, 1900-23, III, 1, p. 223]

In fine sand near low-water mark at Jennycliff B., under Batten Castle ; on the south shore of the Yealm Estuary and in Wembury B. (E.J.A.)

Larvae in tow-nets in July and Aug. (E.J.A.) Sept. (E.J.B.)

Family **Disomidae**

POECILOCHAETUS SERPENS Allen [1904 a, p. 79]

In sand at low tide south of Batten Castle ; larvae not uncommon in the plankton during the summer months (E.J.A.)

Family **Chaetopteridae**

CHAETOPTERUS VARIOPEDATUS (Renier) [*McIntosh*, 1900-23, III, 1, p. 120]

Common in muddy gravel on the Eddystone Gds., Rame-Eddystone and Looe-Eddystone Gds. (E.J.A.) : occasional specimens Duke Rk. (T.V.H.) : Asia Sh. (R.A.T.) : Millbay Ch. (R.A.T., E.J.A.) : Mewstone Echinoderm Gd. (R.A.T.) : Stoke Pt. Gds. (S.P.) : a few specimens at a number of positions S.S.W. of the Eddystone in depths of 40-51 fms. were taken by Crawshay (1912, p. 343)

Larvae in tow-nettings July to Oct. (W.G.)

BREEDING : ripe eggs and sperm in July (A.J.S., E.J.A.) : with mobile spermatozoa, July (A.J.S.)

SALCOMBE. Found on the shore at extreme low water on the west side of the Salstone and on the *Zostera* bank near the mouth of the harbour on the western side (Allen & Todd, 1900, p. 195)

PHYLLOCHAETOPTERUS ANGLICA Potts [*Potts*, 1914, p. 984]

From material brought in by trawlers from some locality south of the Eddystone (Potts *loc. cit.*). Fauvel thinks this is *Ph. socialis* Claparède.

Family **Cirratulidae**

AUDOUINIA TENTACULATA (Montagu) [*McIntosh*, 1900-23, III, 1, p. 242 as *Cirratulus*]

Common in gravel and sand just below high-water mark on all shores both inside and outside the Sound, excepting on open sandy beaches ; occasional small specimens dredged in shallow water amongst the roots of weeds (E.J.A.) : St. John's Lake, Rat I., Aug., Sept. 1928 (E.P.)

Breeding : one specimen from Rum B. extruded eggs in dish, July 21st, 1916 (A.J.S.) : June-July, 1928, fertilisations made and larvae reared (D.P.W.)

SALCOMBE. Very common all over the estuary above half-tide mark, wherever the soil contains much mud mixed either with gravel or sand (Allen & Todd, 1900, p. 194)

CIRRATULUS CIRRATUS (O. F. Müller) [*McIntosh*, 1900-23, III, 1, p. 249]

McIntosh (*loc. cit.*, p. 250) gives Plymouth as a locality on the authority of Spence Bate and Brooking Rowe. Dr. Allen states " I have obtained a number of specimens from crevices in the shale at Rum B., and from

the shore below the Laboratory. Small specimens have been obtained from dredgings in the Cattewater and from the scrapings of the piles in Millbay Dock" (Allen, 1915, p. 632). Cawsand B., shore near high-water mark, one good sized specimen (E.J.A.) : Rat. I. shore above Ince Castle, Aug.-Sept. 1928 (E.P.)

CIRRATULUS NORVEGICUS (Quatrefages) [Southern, 1914, p. 107]

A specimen was obtained from crevices in the shale at Rum B. (E.J.A. confirmed by Southern)

DODECACERIA CONCHARUM Oersted [McIntosh, 1900-23, III, 1, p. 255]

Boring in limestone on Plymouth Breakwater, abundant ; also in limestone below the Laboratory and from Millbay Channel (E.J.A.)

Breeding : N. side of Breakwater, extruding ripe eggs, 18.1.11 ; shore under Laboratory, containing eggs, 10.10.12, 14.1.13 (about 60 specimens) 12 and 13.2.13 (A.J.S.) : undergoes asexual reproduction by fragmentation and regeneration in Dec. and Jan. (D.P.W.)

STREBLOSPIO SHRUBSOLI Buchanan [Fauvel, 1927, II, p. 106]

Occasional specimens in mud, R. Lynher up to flat above St. German's Bridge ; R. Tamar up to $\frac{1}{2}$ mile above Halton Quay, June-Oct. 1928 (E.P.) : mud from big ditch, Chelson Meadow, May 1914 ; a second specimen Nov. 11th in a coiled mud tube ; 7.10.20, in very large numbers from Chelson Meadow (E.J.A.)

Family Chlorhaemidae

FLABELLIGERA AFFINIS Sars [McIntosh, 1900-23, III, 1, p. 107]

Between tide-marks at Drake's Is. (R.A.T., T.V.H., E.J.A.) : Reny Rks. (R.A.T., E.J.A.) : under Rame Hd. (T.V.H.) : Wembury B. (E.J.A., A.J.S.) : in dredgings from Millbay Ch., Queen's Gd. (R.A.T., T.V.H.) : Mewstone Gds. (E.J.A., R.A.T.) : on *Echinus acutus* (R.A.T.) ; shore, Cawsand, on *Echinus acutus* (A.J.S.)

STYLARIOIDES PLUMOSA (O. F. Müller) [McIntosh, 1900-23, III, 1, p. 89]

In dredgings from Millbay Ch. and Asia Sh., occasional specimens ; also dredged off Stoke Pt. (E.J.A.)

DIPLOCIRRUS GLAUCUS Haase [McIntosh, 1900-23, III, 1, p. 96, as Stylarioides]

2 specimens 5 $\frac{1}{2}$ m. W. of Rame, 3.9.19, coarse tow-net which had touched bottom and collected a lot of shell gravel ; one specimen, 15.9.19, coarse tow-net on otter boards, Rame Hd., E.N.E., Eddystone S. by E. (E.J.A.)

Family Scalibregmidae

SCALIBREGMA INFLATUM Rathke [McIntosh, 1900-23, III, 1, p. 34]

In muddy gravel at low water on the S. shore of the Yealm R., just below the junction of the two rivers, two specimens 10.9.00 (E.J.A.)

SCLEROCHEILUS MINUTUS Grube [McIntosh, 1900-23, III, 1, p. 42]

This species was formerly frequently taken in Millbay Ch. dredgings, and occasionally in dredgings from Asia Sh. and off the Mewstone. During the last few years no specimens have been found in spite of special search for it (E.J.A.)

Family **Opheliidae**

AMMOTRYPANE AULOGASTER Rathke [*McIntosh*, 1900-23, III, 1, p. 15]

Occasionally dredged in the Sound, and on the Mewstone shell gravel (E.J.A.): in mud one mile S. of Rame Hd., about 6 specimens; dredge with fine mesh, 5.9.11 (J.H.O.)

POLYOPHTHALMUS PICTUS (Dujardin) [*McIntosh*, 1900-23, III, 1, p. 21]

On the shore between tide-marks Wembury B. (A.J.S.): occasionally found on all rocky shores among weeds and coralline of tide-pools (E.J.A.)

Family **Capitellidae**

NOTOMASTUS LATERICEUS Sars [*McIntosh*, 1900-23, III, 1, p. 276]

On the shore in black, muddy sand near low-water mark in the upper parts of the Yealm Estuary; occasional specimens from the shore at Rum B. and Wembury B. (E.J.A.)

SALCOMBE. One of the commonest polychaetes of the shores of the estuary. Especially abundant and large in the fine mud in the upper parts of the estuary (Allen & Todd, 1900, p. 194)

Breeding: in upper parts of Salcombe Estuary April to June 1928. Fertilisations made (D.P.W.)

NOTOMASTUS RUBICUNDUS Keferstein [*Eisig*, 1887, p. 863]

In fine, clean sand on the north and south shores of the Yealm Estuary near the mouth. In fine, clean sand at Wembury B. (E.J.A.) (See note *Journ. Mar. Biol. Assoc.*, X, pp. 637-638)

HETEROMASTUS FILIFORMIS (Claparède) [*Eisig*, 1887, p. 839]

Widely distributed in stiff mud R. Tamar up to Neille Pt., R. Lynher up to beach 100 yds. above Antony Creek, June-Oct. 1928 (E.P.)

CAPITELLA CAPITATA (Fabricius) [*McIntosh*, 1900-23, III, 1, p. 280]

Common in black mud from between tide-marks, Wembury B. and Rum B. (E.J.A.): R. Lynher, shore at Ince Castle, one specimen; Rat. Is. one specimen (E.P.)

Family **Arenicolidae**

ARENICOLA MARINA L. [*McIntosh*, 1900-23, III, 1, p. 59]

In fine sand between tide-marks at Rum B., Drake's Is., Mt. Edgcombe, Wembury B. and Yealm R. (T.V.H., R.A.T., E.J.A.). Post-larval stages in tow-nettings, Feb. (W.G., W.B.B.); March (E.J.A.); R. Tamar, up to flat below Cargreen (R. bank); R. Lynher up to junction of Tiddy and Lynher, June-Oct. (E.P.)

Breeding: from Wembury Bay shore, spawned 8.10.25.

SALCOMBE. Common in all parts of the harbour in sand or muddy sand (Allen & Todd, 1900, p. 195)

Breeding: Salcombe (Millbay Shore), 14.4.26, one specimen released eggs during preservation (S.M.N.)

ARENICOLA ECAUDATA Johnston [*McIntosh*, 1900-23, III, 1, p. 72]

With *A. branchialis* near the bases of rocks in a deposit composed of sand and small stones (F.W.G.) : Rum B. ; in sand and gravel around the rocks below the Laboratory (R.A.T.) : Wembury B. (R.A.T., E.J.A.) : Drake's Is. (T.V.H.)

Breeding : shore, Jennycliff, 3.2.15, thousands of nearly ripe eggs in several individuals, a few segmented ; N.E. corner of Drake's Is. (shore) 6.1.20, " eggs and sperm appear to be ripe " (A.J.S.) : 22.3.20, probably this species, Wembury B. W., ripe ova and spermatozoa (J.H.O.)

ARENICOLA BRANCHIALIS Audouin and Edwards [*McIntosh*, 1900-23, III, 1, p. 78]

With *A. ecaudata* near the bases of rocks in a deposit composed of sand and small stones (F.W.G.) : Rum B., Wembury B., Drake's Is. (E.J.A.)

Family **Maldanidae**EUCLYMENE MODESTA (Quatrefages) [*Arwidsson*, 1922, p. 32 ; *Fauvel*, 1927, p. 172 (footnote), however, says that the species described by *Arwidsson* is not the *Clymene modesta* of Quatrefages]

SALCOMBE. Muddy beach under Marine Hotel, 4 specimens, collected by E.J.A. and R.A.T. 11.8.00, 1 specimen collected by F.A.P., Sep. 1908 ; Salstone, 6 specimens collected by E.J.A. and R.A.T., 11.9.00. All specimens identified and described by *Arwidsson*, 1922, pp. 32-36.

HETEROCLYMENE ROBUSTA *Arwidsson* [1907, p. 227]

Occasionally met with among trawled material from the Rame-Eddystone Grounds (E.J.A.)

CAESICIRRUS NEGLECTUS *Arwidsson* [1911-12, p. 217 and 1922, p. 36]

In sand and among roots of *Zostera* at the mouth of the Yealm Estuary (E.J.A.)

SALCOMBE. Muddy beach under Marine Hotel, 4 specimens, collected by E.J.A. and R.A.T., 11.8.00, 10 specimens collected by F.A.P., Sep. 1908 ; Salstone, 10 specimens collected by E.J.A. and R.A.T., 11.9.00. All the Salcombe specimens identified and described by *Arwidsson* 1922, pp. 36-41.

LEIOCHONE LEIOPYGOS (Grube) [*Arwidsson*, 1922, p. 18]

SALCOMBE. Sandy beach, opposite the Marine Hotel, 17 specimens, collected by F.A.P., Sep. 1908 ; Salstone, 1 posterior end, collected by E.J.A. and R.A.T., 11.9.00. All specimens identified and described by *Arwidsson*, 1922, pp. 18-23.

PROCLYMENE MULLERI (M. Sars) [*Arwidsson*, 1907, p. 129 ; *Fauvel*, 1927, p. 186 ; *Allen*, 1915, p. 639, as *Nicomache lumbricalis* (Fabricius) var.]

One anterior end from Rame-Eddystone Grounds, among trawled material, 12.7.06, identified by *Arwidsson*.

MICROMALDANE ORNITHOCHAETA Mesnil [1897, p. 146 ; *Southern*, 1914, p. 134]

Found once on the shore at Rum Bay (E.J.A.)

Family **Oweniidae**

OWENIA FUSIFORMIS Delle Chiaje [*McIntosh*, 1900-23, III, 1, p. 356]

In fine sand near low-water mark at Jennycliff B. and under Batten Castle (E.J.A.)

SALCOMBE. In clean, fine sand at Millbay (Allen & Todd, 1900, p. 195)

TORQUAY. Abundant in the Tor Abbey sands. Breeding: Mar.-Aug. Fertilisations made and larvae reared (D.P.W.)

Family **Sabellariidae**

SABELLARIA ALVEOLATA (L.) [*McIntosh*, 1900-23, IV, 1, p. 22]

Common attached to rocks on sandy shores at Whitsand B. (E.J.A.): Wembury B., Cawsand B. (A.J.S.)

Breeding: Jan., Mar. (A.J.S.): Mar., Apr. (J.H.O.): throughout greater part of the year (Wilson, 1929, p. 222)

SABELLARIA SPINULOSA Leuckart [*McIntosh*, 1900-23, IV, 1, p. 12]

Occasional specimens attached to shells, etc., from all dredging grounds in the Sound, and from outside dredging and trawling grounds to the Eddystone (E.J.A.): found in small numbers at many positions S.S.W. of the Eddystone by Crawshay (1912, p. 348)

Breeding: May (W.G.): Sept. (E.J.A.): Jan.-Sept., fertilisations made and larvae reared (Wilson, 1929, p. 222)

PALLASIA (LYGDAMIS) MURATA Allen [1904, p. 299]

Two or three specimens have been obtained from gravel off Stoke Pt. and from shell gravel near the Mewstone; empty tubes are frequently found on the latter ground (E.J.A.): Rame bearing N. $\frac{1}{2}$ W. 5 m. 27.6.12, dredge (A.J.S.): Crawshay obtained tubes or portions of tubes at a large number of positions S.S.W. of the Eddystone in depths of 40 to 50 fms.; living specimens were obtained at three positions, the largest number being from 23.3 m. S. 28° W. of the Eddystone, at a depth of 45 fms., where portions of six worms were taken (Crawshay, 1912, p. 348). A larva probably belonging to this species was obtained in the plankton in Feb. 1927 (Wilson, 1929, p. 242)

Family **Amphictenidae**

PECTINARIA (LAGIS) KORENI Malmgren [*McIntosh*, 1900-23, IV, 1, p. 49]

Common in sand near low-water mark S. of Batten Castle (E.J.A.)

SALCOMBE. Two specimens recorded as *P. belgica* from the shore may be this species (Allen & Todd, 1900, p. 198)

PECTINARIA (AMPHICTENE) AURICOMA (Müller) [*Malmgren*, 1865, p. 357]

Eddystone Gds. (T.V.H.)

PETTA PUSILLA Malmgren [1865, p. 361; *Fauvel*, 1914, p. 279]

Two specimens dredged S.S.W. of the Eddystone in 42 fms. by Crawshay (1912, p. 346)

Family **Ampharetidae**

AMPHARETE GRUBEI Malmgren [*Fauvel*, 1927, p. 227]

St. John's Lake, opposite Rifle Range, one specimen, 16.9.28, by hand (E.P.)

AMPHICTEIS GUNNERI Sars [*McIntosh*, 1900-23, IV, 1, p. 70 ; *Fauvel*, 1914, p. 281]

One specimen dredged four m. S.W. by S. of Rame Hd. (E.J.A.). Recorded in 1904 list as *A. curvipalea* which Fauvel has shown to be identical with *A. gunneri* Sars.

From several places roughly 3 m. S. of Mewstone in depth of about 25 fms., 27.7.28, grab and conical dredge (G.A.S.)

MELINNA CRISTATA (Sars) [*Fauvel*, 1927, p. 237]

SALCOMBE. Female containing disc-shaped eggs (G.A.S.)

MELINNA PALMATA Grube [*Fauvel*, 1927, p. 239] = *M. adriatica* Marenzeller.

Very common in soft mud in Plymouth Sound, found both on the shore at low water and also by dredging (E.J.A.): R. Lynher, Wivelscombe Lake, Rat Is., shore (E.P.)

Breeding: breeds in the Sound probably about July (D.P.W.)

SALCOMBE. In fine mud in the upper parts of Salcombe and Kingsbridge Estuary in very great abundance. Probably the *Sabella curta* of Montagu (Allen & Todd, 1900, p. 197)

Family **Terebellidae**

AMPHITRITE GRACILIS Grube [*McIntosh*, 1900-23, IV, 1, p. 122, as *A. scylla* (Savigny)]

Common in sand between tide-marks and between layers of shale in Rum B. and at Mt. Edgcumbe, Yealm Sand-bank and Wembury B.; dredged at Millbay Ch. and Eddystone Gds. (E.J.A.)

AMPHITRITE JOHNSTONI Malmgren [*McIntosh*, 1900-23, IV, 1, p. 117, as *A. figulus* (Dalyell)]

In sand and gravel near low-water mark along the southern shore of the Yealm R.; most common on the east shore where the stream divides (R.A.T., E.J.A.): occasional specimens from Rum B. (E.J.A.)

Breeding: near mouth of R. Yealm, 23.3.20, full of light red eggs, R. Yealm, S. shore, Zostera bed near ferry house, 5.4.23, with ripening eggs (J.H.O.)

SALCOMBE. Very abundant on the Salstone, especially on the north-east and south-east sides; occasionally met with on the shore in all parts of the Kingsbridge Estuary and Salcombe Harbour, being abundant on the western shore near the mouth of the harbour (under Marine Hotel) (Allen & Todd, 1900, p. 195)

AMPHITRITE EDWARDSI Quatrefages [*McIntosh*, 1900-23, IV, 1, p. 114, as *A. gigantea* (Montagu)]

SALCOMBE. In the Zostera banks near the mouth of Salcombe Harbour, being especially abundant on the western side (under Marine Hotel). In the latter locality *A. johnstoni* is also found, but is more abundant at a

somewhat lower tidal level. *A. edwardsi* was never found in the Kingsbridge estuary, where *A. johnstoni* was common (E.J.A.). The burrows of *A. edwardsi* were generally occupied by the polynoid *Lepidasthenia argus* (Allen & Todd, 1900, p. 196)

Breeding: 13.4.22, Salcombe Estuary off Marine Hotel, females with ripe eggs (*Lepidasthenia* again common) (J.H.O.): a specimen under circulation discharged eggs, 13.4.28 (D.P.W.)

TEREBELLA LAPIDARIA L. [*McIntosh*, 1900-23, IV, 1, p. 165, as *Leprea lapidaria* (L.)]

Common in crevices of shale at Rum B. (R.A.T., E.J.A.)

LANICE CONCHILEGA (Pallas) [*McIntosh*, 1900-23, IV, 1, p. 137]

Common on sandy shores inside and outside the Sound; occasionally dredged on Queen's Gd.: Eddystone Gd. (T.V.H., R.A.T., E.J.A.): empty tubes were dredged S.S.W. of the Eddystone at depths from 42 to 49 fms. by Crawshay (1912, p. 343). St. John's Lake; Rat Is.; shore near Ince Castle, June-Oct. 1928 (E.P.)

Breeding: Post larvae found in the plankton in the spring, also in Nov. 1926. These larvae have been reared to a stage at which it was possible to determine the species (D.P.W.)

SALCOMBE. Extremely abundant in patches of clean sand near the mouth of the harbour on both sides, and in sheltered parts of sandy bays outside the harbour. Found only occasionally in the upper parts of the estuary (Allen & Todd, 1900, p. 196)

POLYMNIA NEBULOSA (Montagu) [*McIntosh*, 1900-23, IV, 1, p. 129]

Very common between tide-marks at Mt. Edgumbe (R.A.T., E.J.A.): occasional specimens on the shore at Rum B. and in dredgings from Millbay Ch., Asia Sh., Queen's Gd. and Yealm R. (R.A.T., E.J.A.): Eddystone Gds. (T.V.H.): dredged at a number of stations S.S.W. of the Eddystone in 40-50 fms. by Crawshay (1912, p. 343)

SALCOMBE. Dredged in the Channel west of the Salstone (Allen & Todd, 1900, p. 197)

POLYMNIA NESIDENSIS (Delle Chiaje) [*McIntosh*, 1900-23, IV, 1, p. 126]

Between tide-marks at Rum B., Mt. Edgumbe, Wembury B.; dredged at Asia Sh., Yealm R. and Cawsand Bay (E.J.A.): one specimen dredged S.S.W. of the Eddystone at a depth of 49 fms. by Crawshay (1912, p. 343)

NICOLEA VENUSTULA (Montagu) [*de St. Joseph*, 1894, p. 207]

Seven specimens obtained 32 m. S. of Start Pt. (40-43 fms.) (E.J.A.): dredged at a number of stations S.S.W. of the Eddystone at depths of 42-50 fms. (Crawshay, 1912, p. 343)

NICOLEA ZOSTERICOLA (Oersted) [*Malmgren*, 1865, p. 381]

Common between tide-marks on Reny Rks.; less frequent on the N. side of Drake's Is.; also obtained from dredgings in Yealm R. (E.J.A.)

PISTA CRISTATA (Müller) [*McIntosh*, 1900-23, IV, 1, p. 158; *Fauvel*, 1927, p. 266]

Mewstone 342° 1½ m. 22 fms., 22.7.28, Petersen Grab (G.A.S.)

THELEPUS CININNATUS (Fabricius) [*McIntosh*, 1900-23, IV, 1, p. 170]

Common on the trawling gds. in the neighbourhood of the Eddystone (20-40 fms.) (E.J.A.): obtained at a number of stations S.S.W. of the Eddystone in depths of 40 to 50 fms. (Crawshay, 1912, p. 344)

SALCOMBE. It is doubtful whether the species found at Salcombe should be assigned to *T. setosus* or to *T. cincinnatus* (Allen & Todd, 1900, p. 197)

POLYCIRRUS CALIENDRUM Claparède [*McIntosh*, 1900-23, IV, 1, p. 197]

Common in dredgings from all parts of the Sound, especially in Millbay Ch.; dredged also in Yealm R.; occasional specimens among weeds and Laminaria roots from the shore. Bright scarlet-red and yellow specimens, both with 6 pairs of nephridia (see Allen, 1915, p. 636)

POLYCIRRUS HAEMATODES (Claparède) [*McIntosh*, 1900-23, IV, 1, p. 198]

Not uncommon in dredgings from the Sound, especially from Millbay Ch. and Asia Sh.; much less numerous than *P. caliendrum* (E.J.A.)

LOIMIA MEDUSA (Savigny) [*Malmgren*, 1865, p. 380, *McIntosh*, 1900-23, IV, 1, p. 147, as *L. montagui* McIntosh]

Among shell gravel near low-water mark on the N. side of Drake's Is.; from the shore in Yealm R.; tubes dredged on Queen's Gd. (E.J.A.): several specimens roughly 3 m. S. of Mewstone, Aug. 1928, Petersen Grab. (G.A.S.). Larvae very common in tow-nets, spring and summer (M.V.L., D.P.W.)

TEREBELLIDES STROEMI Sars [*McIntosh*, 1900-23, IV, 1, p. 209]

One specimen dredged four miles S.W. by S. of Rame Hd. (E.J.A.): Mewstone 342°, 2½ m., 24 fms., 15.8.28, conical dredge (G.A.S.)

Family **Sabellidae****SABELLA PAVONINA** (Savigny) [*McIntosh*, 1900-23, IV, 1, p. 223, as *S. penicillus* L.]

Common on the shore in Yealm R. and also found in Yealm dredgings; common on the shore in the Cattewater, near the entrance to Hooe Lake; Looe-Eddystone, Rame-Eddystone and Eddystone Gds., common amongst hydroids and Cellaria (E.J.A.): dredged S.S.W. of the Eddystone at a number of positions in depths of 40 to 51 fms. (Crawshay, 1912, p. 346)

Breeding: Aug.-Sept. (C.S.)

SALCOMBE. Very abundant on the shore at the Salstone, and on the mud in Kingsbridge Estuary, S. of Garston Pt. Absent from the banks near the mouth of Salcombe Harbour (Allen & Todd, 1900, p. 198). These estuarine specimens were of large size (E.J.A.)

BISPIRA VOLUTACORNIS (Montagu) [*McIntosh*, 1900-23, IV, 2, p. 254]

In cracks between rocks at extreme low-tide mark on Reny Rks. and in Jennycliff B. (E.J.A.)

SALCOMBE. E. side near mouth of Harbour in sheltered rock pool exposed at half tide; a small cluster grew out from a crevice 21.9.23 (N.J.B.)

POTOMILLA RENIFORMIS (O. F. Müller) [*McIntosh*, 1900-23, IV, 1, p. 232]

Large specimens from the shore at Rum B. and Jennycliff B. in crevices of shale ; occurs also attached to rocks below the Laboratory, at Wembury B. and other rocky shores ; not uncommon in holes in limestone from Plymouth Breakwater (E.J.A.)

POTAMILLA TORELLI Malmgren [*McIntosh*, 1900-23, IV, 1, p. 239]

Common in dredgings from Millbay Ch., Asia Sh. and Yealm R. (E.J.A.) : in the 1904 list *Potamilla incerta* Langerhans, found in dredgings from the Yealm R., was recorded. Fauvel considers this form to be a young stage of *P. torelli* (E.J.A.)

BRANCHIOMMA VESICULOSUM (Montagu) [*McIntosh*, 1900-23, IV, 1, p. 247]

Occasional specimens on the shore, Yealm sand-bank and Rum B. (R.A.T.) : Drake's Is. ; S. shore of Yealm near the mouth ; Barn Pool ; shore south of Batten Castle (E.J.A.)

SALCOMBE. In Salcombe Estuary, abundant where the soil is composed of gravel ; it is found at a higher level than *Sabella pavonina* and *Myxicola infundibulum*. Most numerous on the Salstone and in the upper parts of Salcombe Harbour (Allen & Todd, 1900, p. 199)

Breeding : in Salcombe Estuary, June-Aug. Fertilisations made and larvae reared (D.P.W.)

DASYCHONE BOMBYX (Dalyell) [*de St. Joseph*, 1894, p. 309]

Among Laminaria roots from the shores of the Sound, and among ascidians from Millbay Dock ; occurs on all the dredging gds. in the Sound and outside to Eddystone Gds. (E.J.A.) : St. John's Lake opposite Rifle range, one specimen (E.P.) : dredged at a number of positions S.S.W. of the Eddystone in depths of 40-49 fms. (Crawshay, 1912, p. 346)

AMPHIGLENA MEDITERRANEA (Leydig) [*McIntosh*, 1900-23, IV, 2, p. 270]

Among Laminaria roots from the rocks below the Laboratory ; in crevices of shale at Wembury B. (E.J.A.)

FABRICIA SABELLA Ehrenberg [*McIntosh*, 1900-23, IV, 2, p. 264]

Very abundant among mud scraped from piles at Millbay Dock (E.J.A.)
Breeding : Feb. (E.J.A.)

ORIDIA ARMANDI (Claparède) (= *Oria armandi*) [*McIntosh*, 1900-23, IV, 2, p. 268]

Among ascidians from the piles at Millbay Dock (E.J.A.)

MANAYUNKIA AESTUARINA (Bourne) = *Haplobranchus estuarinus* [Bourne, 1883, p. 169 ; *McIntosh*, 1900-23, IV, 2, p. 305]

In tide pools not far from the mouth of the Yealm (Buchanan, Rep. Brit. Assoc., 1892, p. 359)

JASMINEIRA ELEGANS de St. Joseph [*de St. Joseph*, 1894, p. 316 ; *McIntosh*, 1900-23, IV, 2, p. 301]

Amongst dredgings from Duke Rk. and Asia Sh. (E.J.A.)

MYXICOLA INFUNDIBULUM (Renier) [*McIntosh*, 1900-23, IV, 2, p. 311]

Found occasionally on the shore, N. side of Drake's Is. (R.A.T.) : Barn Pool (E.J.A.) : Ram's Cliff Pt. (S.P.)

SALCOMBE. Very frequent on all parts of the Salstone and on the *Zostera* flat immediately to the S. of Pilworth Pt. ; occasionally specimens in the lower parts of Salcombe Harbour (Allen & Todd, 1900, p. 199)

MYXICOLA AESTHETICA (Claparède) [*McIntosh*, 1900-23, IV, 2, p. 317]

Common in dredgings from Millbay Ch. and Asia Sh. ; occasional specimens in dredgings from all parts of the Sound ; from the shore at Rum B. in crevices of shale (E.J.A.)

Family **Serpulidae****SERPULA VERMICULARIS** L. [*McIntosh*, 1900-23, IV, 2, p. 353]

Occasional specimens in the Sound ; in small numbers from Mewstone Gds., Looe-Eddystone, Rame-Eddystone and Eddystone Gds. (E.J.A.) : obtained at a number of positions S.S.W. of the Eddystone in depths of 42 to 49 fms. (Crawshay, 1912, p. 346). Large masses of this species were obtained by a diver somewhere in the Hamoaze, and brought to the Laboratory (E.J.A.)

Breeding : specimens from Eddystone Gds. in Aug. and Sept. were ripe (C.S.) : ripe Apr. 12th 1920, successfully fertilised (H.O.)

HYDROIDES NORVEGICA Gunnerus [*de St. Joseph*, 1898, p. 440]

Common on stones and shells from the shore to 30 fms., increasing in abundance in the deeper water (E.J.A.) : dredged at a number of positions S.S.W. of the Eddystone in depths of 40-49 fms. by Crawshay (1912, p. 347)

Breeding : Aug. (C.S.)

POMATOCEROS TRIQUETER (L.) [*McIntosh*, 1900-23, IV, 2, p. 362]

Common, attached to shells and stones on all grounds from the shore to 30 fms. (E.J.A.) : R. Tamar, up to Hole's Hole, dredged from main channel, and collected on bank ; R. Lynher, up to beach 100 yds. above Antony Creek, dredge and hand, June-Oct. 1928 (E.P.) : dredged at several positions S.S.W. of Eddystone in depths of 42-51 fms. (Crawshay, 1912, p. 347)

Breeding : Mar.-Apr., successfully fertilised, Rum B., Wembury, below Laboratory (J.H.O., H.O.) : almost any time of year, successfully fertilised (M.V.L.)

SALCOMBE. Common in dredge material from Salcombe Harbour and the Kingsbridge Estuary (Allen & Todd, 1900, p. 199)

FILOGRANA IMPLEXA (Berkeley) [*McIntosh*, 1900-23, IV, 2, p. 339]

In quantity from Millbay Ch., from piles on the Promenade Pier (E.J.A.) : on piles at the entrance to Millbay Docks (R.A.T.) : on the Breakwater (T.V.H.) : occasionally met with in all dredgings from the Sound and on the outer grounds to the Eddystone (E.J.A.) : recorded at three stations S.S.W. of the Eddystone in 42-43 fms. by Crawshay (1912, p. 347)

Breeding : July, Aug. and Sept. (C.S.)

PROTULA TUBULARIA (Montagu) [*McIntosh*, 1900-23, IV, 2, p. 332]

Found on the Mewstone Gds., Rame-Eddystone Gds. and Eddystone Gds. (R.A.T., E.J.A.): dredged at four positions S.S.W. of the Eddystone, in depths of 42-49 fms. (Crawshay, 1912, p. 347)

Breeding: Females with ripe eggs from Eddystone Gds. in June (A.J.S.): Aug. and Sept. (C.S.)

SPIROBIS BOREALIS Daudin [*McIntosh*, 1900-23, IV, 2, p. 409]

Common on weeds, especially *Fucus*, and on stones on all shores (E.J.A.): Rat Is. on stones and *Fucus* above low water (E.P.)

SALCOMBE. Common in dredge material from Salcombe Harbour and the Kingsbridge Estuary (Allen & Todd, 1900, p. 199)

SPIROBIS SPIRILLUM (L.) [*McIntosh*, 1900-23, IV, 2, p. 391]

Dredged by Crawshay at a number of positions S.S.W. of Eddystone in 42-51 fms.; it occurred commonly on hydroids, especially on *Sertularia abietina* (Crawshay, 1912, p. 347): R. Tamar, Neille Pt., on stone, 17.8.28 (E.P.)

Order OLIGOCHAETA

Family **Naiidae****CHAETOGASTER DIAPHANUS** (Gruithuisen) [*Michaelsen*, 1927, p. 7]

In moss, *Eurhynchium rusciforme*, below Weir Head, shallow water, hand collecting, 11.7.28, a freshwater species living with brackish water forms (E.P.)

NAIS ELINGUIS O. F. Müller [*Michaelsen*, 1909, p. 18]

In moss (*Eurhynchium rusciforme*) at Weir Head, 11.8.28, hand collecting, a freshwater species living in a freshwater plant, which contains brackish water species (E.P.)

Family **Enchytraeidae****ENCHYTRAEUS PELLUCIDUS** Friend [*Michaelsen*, 1900, p. 92]

Under stones near high-water mark where fresh water enters sea, Wembury B., Rum B., 1914 (H.F.)

LUMBRICILLUS VERRUCOSUS (Claparède) [*Michaelsen*, 1900, p. 80]

Plymouth district, locality unknown (H.F.)

PACHYDRILUS LINEATUS (O. F. Müller) [*Michaelsen*, 1927, p. 11]

Under stones between tide-marks, Reny Rocks, 24.9.28; male gonoducts and gonads developed, female developing, spermatheca developed, cocoons with embryos (A.Me.)

Family **Tubificidae****CLITELLIO ARENARIUS** O. F. Müller [*Beddard*, 1889, p. 69]

Mud at Drake's I., and on the shores of the Sound (F.E.B.): R. Tamar, up to 1/3 mile above Calstock Bridge, in stiff mud and sandy places, under stones in muddy places; R. Lynher, shore above Ince Castle June-Oct., hand collecting (E.P.)

CLITELLIO ATER Claparède [*Beddard*, 1889, p. 70]

Mud on Drake's I. and on shores of Sound (F.E.B.)

PELOSCOLEX BENEDENI Udekem [*Michaelsen*, 1927, p. 18]

Up to shore at Neille Point ; in R. Lynher up to mud flat above St. German's Bridge ; in stiff mud and sandy places, June-Oct., hand collecting (E.P.)

TUBIFEX TUBIFEX O. F. Müller [*Michaelsen*, 1909, p. 37]

R. Tamar, down to within 1/3 mile of Calstock Bridge ; R. Tiddy near Tideford, in tidal region, July-Oct., 1928, hand collecting, typical freshwater species (E.P.)

TUBIFEX COSTATUS (Claparède) [*Michaelsen*, 1927, p. 18]

R. Tamar up to 1/3 mile above Calstock ; R. Lynher up to mud flat immediately above St. German's Bridge, June-Oct., hand collecting (E.P.)

Class HIRUDINEA

PONTOBELLA MURICATA (L.) [*van Beneden & Hesse*, 1863, p. 23]

Occasionally on the outside grounds ; parasitic on the skate (s.p.) : Mewstone Ledge, Stoke Point Gds., dredge, 19.7.09 (A.J.S.)

Breeding : July (E.W.L.H.). One with two batches of eggs, Mewstone Ledge, dredge, 10.5.09 ; two, one large, attached to old whelk shell, on which were 18 Pontobdella eggs ; Looe-Eddystone Gds. 6 miles W. of Rame, trawl 25.10.21 ; one large specimen off Mewstone Ledge, one egg capsule (early embryos), Agassiz trawl, 12.12.23 (A.J.S.). Two specimens S.W. of Eddystone, 44-46 fms., four lots of eggs on valves of *Chlamys* (*Aequipecten*) *opercularis*, 1912 (L.R.C.)

BRANCHELLION TORPEDINIS Savigny [1820, p. 109]

Whitsand Bay, Plaice-seine, 9.45 p.m., 7.6.11, identified by W. A. Harding (A.J.S.)

CALLIOBELLA LOPHII van Beneden & Hesse [1863, p. 36]

On a large Angler, *Lophius piscatorius*, 4 specimens externally on skin, between gill covers and pelvic fins, 2 on each side ; scattered parasitic amphipods also present, 12.5.13 (H.L.-S.)

Myzostomaria

MYZOSTOMUM CIRRIFERUM Leuckart [*Benham*, 1896, p. 343]

Common on *Antedon bifida* from Sound (E.J.A.)

Phylum **GEPHYREA**Family **Echiuridae****HAMINGIA ARCTICA** Koren and Danielssen [*Fischer*, 1925, p. 4]

One specimen slightly torn in places, Eddystone W. by N., 4 miles, "Salpa's" 60 ft. Otter trawl, 12.10.21, no male in pharynx (E.F.): two female specimens, Eddystone bearing E.S.E. ca. 1½ miles, dredge, 2.11.21 (R.S.C.): Eddystone Gd., dredge, specimen torn in one place, 24.9.26; one damaged specimen, Eddystone E.N.E. 4 miles, dredge 25.5.27 (S.M.N.)

THALASSEMA NEPTUNI Gaertner [*Jameson*, 1899, p. 535; *Greeff*, 1879, p. 145]

Common in holes in rock, Rum Bay, Wembury B., Drake's I.; one specimen Yealm Sand-bank; in stones dredged from Millbay Ch., Asia Sh., and (rarely) Queen's Gd. (R.A.T.): Mewstone Ledge, 8-20 fms. in red conglomerate, dredge, 21.7.20 (R.W.): Mt. Edgcombe Shore, under stone, 5.11.26 (C.L.W.): two small individuals in hard rock from Asia Shoal, 28.8.28 (A.D.H.)

Breeding: Mewstone Gd. and Rum Bay, fertilisations obtained from middle of July until end of September, 1926; not fully ripe until end of 1st week in August and going off in last fortnight of September: Mewstone Gd., fertilisations obtained from middle of July until beginning of October 1927; not fully ripe until end of the first week in August; still fully breeding at the time when observation ceased (Oct. 2nd) (A.D.H.)

Family **Sipunculidae****PHASCOLOSOMA ELONGATUM** Keferstein [*Fischer*, 1925, p. 16]

Yealm R., 1928 (A.Me.)

SALCOMBE. More widely distributed than *P. vulgare*; very common in the *Zostera* banks on the E. side of Salcombe Harbour; also less common on the eastern shore from the Ferry House to Ditch End; single specimens on *Zostera* banks at the N.E. end of Salcombe Harbour and not uncommon on both W. and S.E. shores of the Salstone where the ground is hard (Allen & Todd, 1900, p. 189, as *P. pellucidum*): 1928 (J.H.O. and A.Me.)

PHASCOLOSOMA VULGARE (Blainville) [*Fischer*, 1925, p. 21]

With *Loxosoma phascolosomatum* attached all over the caudal extremity, R. Yealm Sand-bank (above Hotel, towards Steer Pt.), 30.3.11 (A.J.S.): two specimens S.W. of Eddystone, depth 44 fms. (Crawshay, 1912, p. 348)

SALCOMBE. Large specimens numerous in Kingsbridge Est. in the Bay immediately to the north of Pilworthy Pt. (Allen & Todd, 1900, p. 189)

PHASCOLOSOMA MINUTUM Keferstein [*Fischer*, 1925, p. 19]

As *Petalostoma* in 1904 Fauna List. Rum B., common in crevices of shale (T.V.H., R.A.T., E.J.A.): the same locality, 17.9.08, shore collecting (Mrs. Sexton and W. Searle), about a dozen out of 15 contained eggs (A.J.S.)

PHASCOLION STROMBI (Montagu) [*Fischer*, 1925, p. 22]

Frequently met with in shells of *Aporrhais pes-pelecani*, Mewstone Gds. (T.V.H., E.J.A.)

SALCOMBE. One specimen in a shell of *Turritella* from the channel between Snape's Pt. and the mouth of the harbour (Allen & Todd, 1900, p. 189)

SIPUNCULUS sp. Eight or nine partially digested specimens in the stomach of *Scvllium canicula*. caught by a Plymouth trawler near the Eddystone

Phylum **ROTIFERA**

SYNCHAETA GYRINA Hood [*Lauterborn*, 1905, p. 25]

R. Tamar, Neille Point to North Hove, common; with eggs, 7 and 13.11.28; fine net (E.P.): Synchaeta sp. occasionally in tow-nets from Sound (M.V.L.)

Phylum **PHORONIDEA**Family **Phoronidae**

PHORONIS HIPPOCREPIA Wright [*de Selys-Longchamps*, 1907, p. 172]

Abundant in Sound (w.G.): Duke Rk. (T.V.H.): Millbay Ch. (T.V.H., E.J.A.): Asia Sh.; Queen's Gd. (S.P.): Millbay Ch., dredge 3.6.12, a few of the individuals with eggs developing (A.J.S.)

PHORONIS (PSAMMOPHILA Cori?) [*de Selys-Longchamps*, 1907, p. 181]

Estuary of the Yealm, Wembury side about $\frac{1}{2}$ mile up from the bar, in firm shingle at upper edge of Zostera bed; fork and trowel, 29.7.27; not mature; very plentiful (D.P.W.)

ACTINOTROCHA LARVA, species unknown, at times in plankton, inside and outside Sound. Station E 1., only one or a few at one time, March to December, tow-net, 1915-28 (M.V.L.)

Phylum **ARTHROPODA**Class **CRUSTACEA**Sub-Class **BRANCHIOPODA**Order **CLADOCERA**Family **Polyphemidae****EVADNE NORDMANNI** Lovén [*Apstein*, 1901, p. 12]

1892, appeared beginning of July, still present in Oct. (E.J.B.): 1895, constantly present in Aug.; disappeared early Oct. (T.V.H.): Apr.-May, 1899 (P.T.C.): May, July, Sept. 1903; Mar.-June, 1904 (L.H.G.): 1916, began in the end of Apr. and grew very common in May; was common through the summer until the middle of Sept. when it disappeared; 1917-28, might be common any time between March and Oct., very abundant July 1919, 1928, June 1925; inside and outside Sound and Station E. 1 (M.V.L.): Hamoaze, No. 12 Buoy, in Plankton, 20.7.28 (E.P.)

Breeding: Aug. (T.V.H.): winter eggs produced about mid-Sept. (E.J.B.)

PODON INTERMEDIUS Lilljeborg [*Apstein*, 1901, p. 14]

1892, became less abundant in July and disappeared about mid-Sept. (E.J.B.): 1895, constantly present in Aug., disappeared early in Oct. (T.V.H.): Plymouth neighbourhood, Apr.-Sept., 1903; Apr.-July, 1904 (L.H.G.): very similar in occurrence to *Evadne*, but is more frequent in Aug. and Sept. 1916, Apr. to Aug. 1917-18; present Mar. to Oct. 1920-28; very abundant Aug. 1922, July 1928; inside and outside Sound, Station E.1 (M.V.L.): R. Tamar as far as Black Buoy opposite R. Tavy, in plankton; R. Lynher, 100 yds. above Antony Creek, Aug.-Sept. 1928 (E.P.). Carrying ova: Aug. (T.V.H.)

PODON LEUCKARTI Sars [*Apstein*, 1901, p. 13]

Plymouth neighbourhood, Apr. 1905, rare (L.H.G.)

Sub-Class **OSTRACODA**Order **MYODOCOPA**Family **Cypridinidae****PHILOMEDES INTERPUNCTA** (Baird) [*Brady & Norman*, 1896, II, p. 656]

Sound and near Eddystone (A.M.N.)*

ASTEROPE MARIAE (Baird) [*Sars*, 1928, p. 17; *Brady & Norman*, 1896, II, p. 630]
Plymouth (A.M.N.)Sub-Order *Cladocopa*Family **Polycopeidae****POLYCOPE ORBICULARIS** G. O. Sars [1928, p. 31; *Brady & Norman*, 1896, II, p. 706]

Plymouth (A.M.N.)

POLYCOPE AREOLATA Sars [1928, p. 33]

Mewstone mud, Plymouth (R.G.)

POLYCOPSIS COMPRESSA (Brady & Robertson) [*Sars*, 1928, p. 37]

Plymouth Sound (R.G.)

*These records of Crustacea are taken from Norman and Scott, 1906.

Sub-Order *Podocopa*Family **Cypridae**

PONTOCYPRIS TRIGONELLA G. O. Sars [1928, p. 48 ; *Brady & Norman*, 1889, I, p. 109]

Plymouth (A.M.N.)

ERYTHROCYPRIS MYTILOIDES (Norman) [*Sars*, 1928, p. 50 ; *Brady & Norman*, 1889, I, p. 107, as *Pontocypris*]

SALCOMBE (A.M.N.)

ANCHISTROCHELES ACEROSA (Brady) [*Brady & Norman*, 1889, I, p. 110]

Off Eddystone, rare (G.S.B.)

ARGILLOECIA CYLINDRICA G. O. Sars [1928, p. 54 ; *Brady & Norman*, 1889, I, p. 111]

Off Eddystone (G.S.B.)

SALCOMBE (A.M.N.)

BAIRDIA INFLATA (Norman) [*Sars*, 1928, p. 67 ; *Brady & Norman*, 1889, I, p. 112]

Devonshire coast (Spence Bate's dredgings) : Plymouth (A.M.N.)

BAIRDIA ACANTHIGERA Brady [*Brady & Norman*, 1889, I, p. 113]

Devonshire coast (Spence Bate's dredgings) : Plymouth (A.M.N.)

Family **Cytheridae**

CYTHERIDEA ANGUSTATA (Münster) [*Brady & Norman*, 1889, I, p. 172, as *C. elongata*]

Borough I : SALCOMBE (A.M.N.)

EUCYTHERE DECLIVIS (Norman) [*Sars*, 1928, p. 163 ; *Brady & Norman*, 1889, I, p. 178]

Plymouth (A.M.N.)

CYTHERE LUTEA O. F. Müller [*Sars*, 1928, p. 167 ; *Brady & Norman*, 1889, I, p. 125]

A common tide-mark species : Plymouth (A.M.N.)

CYTHERE SEMIPUNCTATA Brady [*Brady & Norman*, 1889, I, p. 130]

Nr. Eddystone (G.S.B. and D.R. *fide* A.M.N. and T.S.)

CYTHERE ALBOMACULATA Baird [*Sars*, 1928, p. 169 ; *Brady & Norman*, 1889, I, p. 138]

A common species between tide-marks all round the coast (A.M.N.)

LEPTOCYTHERE PELLUCIDA (Baird) [*Sars*, 1928, p. 172 ; *Brady & Norman*, 1889, I, p. 127, as *Cythere confusa*]

Plymouth (A.M.N.)

LEPTOCYTHERE MACALLANA (Brady & Robertson) [*Sars*, 1928, p. 173 ; *Brady & Norman*, 1889, I, p. 128, as *Cythere*]

SALCOMBE (A.M.N.)

HEMICYTHERE VILLOSA (G. O. Sars) [1928, p. 182 ; *Brady & Norman*, 1889, I, p. 146 as *Cythere*]

Plymouth. SALCOMBE (A.M.N.)

HEMICYTHERE QUADRIDENTATA (Baird) [*Sars*, 1928, p. 186 ; *Brady & Norman*, 1889, I, p. 159 as *Cythere*]

Plymouth (A.M.N.)

HEMICYTHERE OBLONGA (Brady) [*Sars*, 1928, p. 190 ; *Brady & Norman*, 1889, I, p. 138, as *Cythere*]

Plymouth (A.M.N.)

CYTHEREIS MARGINATA (Norman) [*Brady & Norman*, 1889, I, p. 142, as *Cythere*]
SALCOMBE (A.M.N.)

CYTHEREIS FIDICULA (Brady & Robertson) [*Brady & Norman*, 1889, I, p. 143 as *Cythere navicula*]

Plymouth. SALCOMBE (A.M.N.)

CYTHEREIS EMACIATA (Brady) [*Brady & Norman*, 1889, I, p. 159, as *Cythere*]
Plymouth (A.M.N.) : nr. Eddystone (G.S.B. and D.R. *fide* A.M.N. and T.S.)

CYTHEREIS RUNCINATA (Baird) [*Brady & Norman*, 1889, I, p. 160, as *Cythere*]
Plymouth Sound, 1889 (A.M.N.)

CYTHEREIS TUBERCULATA (G. O. Sars) [*Brady & Norman*, 1889, I, p. 161 as *Cythere*]

Plymouth (A.M.N.)

CYTHEREIS FINMARCHICA (G. O. Sars) [*Brady & Norman*, 1889, I, p. 163, as *Cythere*]

Nr. Eddystone (G.S.B. and D.R. *fide* A.M.N. and T.S.)

CYTHEREIS ANTIQUATA (Baird) [*Brady & Norman*, 1889, I, p. 168, as *Cythere*]
Plymouth (A.M.N.) : nr. Eddystone (G.S.B. and D.R.)

CYTHEREIS JONESI (Baird) [*Sars*, 1928, p. 196 ; *Brady & Norman*, 1889, I, p. 169]

Off Eddystone (G.S.B. and D.R. *fide* A.M.N. and T.S.)

CYTHERURA CORNUTA G. S. Brady [*Brady & Norman*, 1889, I, p. 192]
SALCOMBE (A.M.N.)

CYTHERURA SELLA G. O. Sars [1928, p. 204 ; *Brady & Norman*, 1889, I, p. 194]
Plymouth. SALCOMBE (A.M.N.)

CYTHERURA ACUTICOSTATA G. O. Sars [1928, p. 210 ; *Brady & Norman*, 1889, I, p. 195]

Plymouth (A.M.N.)

CYTHERURA STRIATA G. O. Sars [1928, p. 208 ; *Brady & Norman*, 1889, I, p. 196]

Plymouth. SALCOMBE (A.M.N.)

- CYTHERURA ANGULATA G. S. Brady [*Brady & Norman*, 1889, I, p. 197]
Plymouth. SALCOMBE (A.M.N.)
- CYTHERURA PRODUCTA G. S. Brady [*Sars*, 1928, p. 209 ; *Brady & Norman*, 1889, I, p. 199]
Off Eddystone (G.S.B. and D.R.)
- CYTHERURA NIGRESCENS (Baird) [*Sars*, 1928, p. 202 ; *Brady & Norman*, 1889, I, p. 200]
Everywhere between tide-marks (A.M.N.)
- CYTHERURA CONCENTRICA Norman, Crosskey & Robertson [*Brady & Norman*, 1889, I, p. 201]
SALCOMBE (A.M.N.)
- CYTHERURA FULVA Brady & Robertson [*Sars*, 1928, p. 214 ; *Brady & Norman*, 1889, I, p. 205]
Off Eddystone (G.S.B. and D.R.). SALCOMBE (A.M.N.)
- CYTHERURA CELLULOSA (Norman) [*Sars*, 1928, p. 216 ; *Brady & Norman*, 1889, I, p. 206]
SALCOMBE (A.M.N.)
- LOXOCONCHA IMPRESSA (Baird) [*Sars*, 1928, p. 218 ; *Brady & Norman*, 1889, I, p. 183]
SALCOMBE (A.M.N.)
- LOXOCONCHA GUTTATA (Norman) [*Brady & Norman*, 1889, I, p. 184]
Plymouth (A.M.N.)
- LOXOCONCHA TAMARINDUS (T. R. Jones) [*Sars*, 1928, p. 221 ; *Brady & Norman*, 1889, I, p. 186]
Off Eddystone (G.S.B. and D.R. *vide* A.M.N. and T.S.)
- LOXOCONCHA MULTIFORA (Norman) [*Brady & Norman*, 1889, I, p. 185]
Plymouth (A.M.N.) : off Eddystone (G.S.B. and D.R.)
- CYTHEROPTERON NODOSUM G. S. Brady [*Sars*, 1928, p. 232 ; *Brady & Norman*, 1889, I, p. 208]
Eddystone (G.S.B. and D.R.) : SALCOMBE (A.M.N.)
- CYTHEROPTERON DEPRESSUM Brady & Norman [*Brady & Norman*, 1889, I, p. 218]
Off Eddystone (G.S.B. and D.R.) : SALCOMBE (A.M.N.)
- CYTHEROPTERON HUMILE Brady & Norman [1889, I, p. 219]
In the burrows of Limnoria and Chelura, Plymouth (H.G.C.)
- BYTHOCYTHERE CONSTRICTA G. O. Sars [1928, p. 235 ; *Brady & Norman*, 1889, I, p. 220]
Off Eddystone (G.S.B. and D.R.) : SALCOMBE (A.M.N.)

BYTHOCY THERE TURGIDA G. O. Sars [1928, p. 233 ; *Brady & Norman*, 1889, I, p. 221]

Off Eddystone (G.S.B. and D.R.)

PSEUDOCY THERE CAUDATA G. O. Sars [1928, p. 239 ; *Brady & Norman*, 1889, I, p. 225]

Off Eddystone (G.S.B. and D.R. *vide* A.M.N. and T.S.)

XESTOLEBERIS AURANTIA (Baird) [Sars, 1928, p. 243 ; *Brady & Norman*, 1889, I, p. 188]

Nr. Eddystone (G.S.B. and D.R.) : SALCOMBE (A.M.N.)

XESTOLEBERIS LABIATA Brady & Robertson [*Brady & Norman*, 1889, I, p. 189] Plymouth. SALCOMBE (A.M.N.)

PARACYTHEROIS FLEXUOSA (G. S. Brady) [Sars, 1928, p. 250 ; *Brady & Norman*, 1889, I, p. 236, as *Paradoxostoma*]

Plymouth (A.M.N.)

SCLEROCHILUS CONTORTUS (Norman) [Sars, 1928, p. 247 ; *Brady & Norman*, 1889, I, p. 225]

Plymouth (A.M.N.)

CYTHERIDEIS SUBULATA G. S. Brady [*Brady & Norman*, 1889, I, p. 226]

Plymouth (A.M.N.)

CYTHEROIS FISCHERI (G. O. Sars) [1928, p. 252 ; *Brady & Norman*, 1889, I, p. 228]

SALCOMBE (A.M.N.)

PARADOXOSTOMA VARIABILE (Baird) [Sars, 1928, p. 256 ; *Brady & Norman*, 1889, I, p. 229]

Everywhere between tide-marks and in shallow water (A.M.N.)

PARADOXOSTOMA ENSIFORME G. S. Brady [Sars, 1928, p. 258 ; *Brady & Norman*, 1889, I, p. 229]

Plymouth (A.M.N.)

PARADOXOSTOMA ABBREVIATUM G. O. Sars [1928, p. 263 ; *Brady & Norman*, 1889, I, p. 230]

Plymouth. SALCOMBE (A.M.N.)

PARADOXOSTOMA OBLIQUUM G. O. Sars [1928, p. 259 ; *Brady & Norman*, 1889, I, p. 230]

SALCOMBE (A.M.N.)

PARADOXOSTOMA NORMANI G. S. Brady [Sars, 1928, p. 264 ; *Brady & Norman*, 1889, I, p. 231]

Plymouth. SALCOMBE (A.M.N.)

PARADOXOSTOMA PULCHELLUM G. O. Sars [1928, p. 262 ; *Brady & Norman*, 1889, I, p. 231]

SALCOMBE (A.M.N.)

PARADOXOSTOMA HIBERNICUM G. S. Brady [Sars, 1928, p. 261 ; *Brady & Norman*, 1889, I, p. 232]

SALCOMBE (A.M.N.)

Sub-Class COPEPODA

Order EUCOPEPODA

Sub-Order *Calanoida*Family *Calanidae**CALANUS FINMARCHICUS* (Gunnerus) [Sars, 1903, IV, p. 9]

Frequent in tow-nets, Plymouth (A.M.N. and T.S.) : Plymouth, 1899, more or less common, Apr.-Aug., Oct. (P.T.C.) : 1903-4, common in summer (L.H.G.) : 1916, common on and off from end of Apr. to beginning of Nov., generally present in small numbers at other times (M.V.L.) : 1917-18 (G.E.W.) : 1919-20-21, Jan. to Dec., very common Apr., May, July, Oct. ; 1922, Jan. to Dec., very common May to Oct. ; 1925, Jan. to Dec., very common Jan., Apr., July, Aug. ; 1928, Jan. to Dec., very common May to July, inside and outside Sound, Station E. 1 (M.V.L.) : Station L. 4, many July 15/16, 24, June-July, 1925 (F.S.R.) : Cremyll Battery in plankton, 17.8.28 (E.P.)

Breeding : 1920, eggs and nauplii in plankton Apr., May, June, July ; 1921, July, Aug. (M.V.L.)

SALCOMBE (A.M.N. and T.S.)

Family *Paracalanidae**PARACALANUS PARVUS* (Claus) [Sars, 1903, IV, p. 17]

In plankton from Sound ; nr. Eddystone (A.M.N. and T.S.) : Plymouth, 1888-9, in great abundance except from Sept.-Mar., when it appeared absent (G.C.B.) : 1899, Mar.-Apr., more or less rare, Sept.-Oct., more or less abundant, Nov., rare, Dec., more or less rare (P.T.C.) : 1903, abundant all the year round, except during May and July ; 1904, abundant Jan.-July (L.H.G.) : unusually scarce in 1916 except at certain times, very common in May, common parts of Aug., Sept., and Oct., very common for part of Nov., then rare or absent ; 1919, Feb. to Sept. ; 1920, Sept. to Oct. ; 1921, Feb. to Dec., very common Nov. ; 1922, Mar. to Oct., very common May, June ; inside and outside Sound, Station E. 1 (M.V.L.)

Family *Pseudocalanidae**PSEUDOCALANUS ELONGATUS* Boeck [Sars, 1903, IV, p. 20]

One of the commonest species, in immense numbers during autumn, winter and spring, 1888-9 (G.C.B.) : 1899, Feb.-Apr., more or less rare (P.T.C.) : very common in 1903 and 1904 (L.H.G.) : 1916, perhaps the commonest copepod, exceedingly common all through the year except from the middle of May to the end of July, when it became rarer and was sometimes absent (M.V.L.) : 1917-18, present most of the year (G.E.W.) : 1919, Jan. to Sept., common Apr. to Aug. ; 1920, June to Dec., common Oct. ; 1921, Jan. to Dec., very common May, July, Aug., huge numbers at Station E. 1 in Aug. ; 1922, Jan. to Dec., very common Jan., May, June, Oct. ; 1925, Jan. to Aug., very common Feb., Mar., Aug., common Apr., May ; 1928, present most of the year ; inside and outside Sound, Station E. 1 (M.V.L.) : Hamoaze, No. 12 buoy in plankton, 20.7.28 (E.P.)

Family **Euchaetidae****EUCHAETA HEBES** Giesbrecht [1892, p. 246, 263, 741]

Widely distributed off the South coasts of Devon and Cornwall (L.H.G. *vide* A.M.N. and T.S.)

Family **Stephidae****STEPHOS SCOTTI** Sars [1903, IV, p. 63]

Asia Shoal (R.G.)

Family **Centropagidae****CENTROPAGES TYPICUS** Krøyer [Sars, 1903, IV, p. 75]

Plymouth, 1888-9, abundant except during winter, when it is scarce (G.C.B.): nr. Plymouth, Aug. 1889 (A.M.N., and T.S.): 1899, Jan.-Feb., rare, Mar.-Apr. in fair numbers, May rare, June more or less rare, July and Aug. rare, Sept. very rare (P.T.C.): 1903, Jan., Feb., Apr.-June, Aug.-Oct.; 1904, Jan., July (L.H.G.): common in Sept. and Oct. 1915, scarce or absent through the winter; 1916, rather more abundant in May, becoming scarcer in Aug. (M.V.L.): 1917, common Sept. and Oct.; 1918, Mar. to Oct. (G.E.W.): 1919, Feb.-Sept.; 1920, June-Oct.; 1921, Jan.-Dec., common Apr.-July; 1922, Jan. to Oct., common Aug.; 1925, Feb.-Aug.; 1928, Apr.-Dec., common Aug.; inside and outside Sound Station E.1 (M.V.L.): R. Lynher, off Rat I., R. Tamar up to Black Buoy opposite Tavy, June-Oct., 1928 (E.P.)

CENTROPAGES HAMATUS (Lilljeborg) [Sars, 1903, IV, p. 76]

Taken on several occasions near Plymouth, Aug. 1903 (A.M.N. and T.S.): common in Sept., Oct., 1915, then absent until Aug., when it was very common on the 16th; 1919, June to Aug.; 1920 Sept.; inside and outside Sound (M.V.L.)

ISIAS CLAVIPES Boeck [Sars, 1903, IV, p. 79]

Nr. Plymouth in 20 fms., Aug. 1889 (A.M.N. and T.S.): Plymouth, June, 1899 (P.T.C.): Dec. 1902; Sept. 1903; Mar.-June 1904 (L.H.G.): 1916, fairly common in May, rare in June (M.V.L.): 1925, July 16, 2-3 m. E. of Eddystone (F.S.R.)

SALCOMBE. Common in surface gatherings near Salcombe, July 1875 (A.M.N. and T.S.)

Family **Temoridae****TEMORA LONGICORNIS** (O. F. Müller) [Sars, 1903, IV, p. 97]

Frequent in a gathering from 20 fms. nr. Plymouth 1882 (A.M.N. and T.S.): Plymouth, 1888-9, scarce during winter months, becoming more common in Apr., and reaching maximum abundance Aug.-Sept. (G.C.B.): 1899, Mar. somewhat rare; Apr. very common, June-Oct. rare (P.T.C.): 1903-4, rare in winter (L.H.G.): 1915-16, very common all through summer and in middle of Feb., common in parts of Nov., but rather rare in winter (M.V.L.): 1918, present Jan. to Oct., very common May (G.E.W.): 1919, Feb. to Sept., very common July; 1920, May to Oct., very common June, Sept.; 1921, Jan.-Oct.; 1922, Feb. to Sept., very common May; 1925, Apr. to Aug., very common July; 1928, very common June, July, common Aug., Oct.; inside and outside Sound, Station E.1 (M.V.L.): R. Tamar as far as Black Buoy opposite Tavy, June-Oct., 1928 (E.P.)

EURYTEMORA VELOX (Lilljeborg) [*Sars*, 1903, IV, p. 100]

Shallow pool in marsh above St. Germans, Cornwall, 25.6.28 (E.P.)

SALCOMBE. July 1875 (A.M.N. and T.S.)

EURYTEMORA AFFINIS (Poppe) [*Giesbrecht and Schmeil*, 1898, p. 103]

Several specimens, male and female and juv., from brackish water near Plymstock, 1903; females with ova (A.M.N. and T.S.): R. Tamar and Lynher, fine tow-net, all depths; in Tamar up as far as Morwellham Quay, especially abundant between Hole's Hole and Calstock; found along length of estuary from Cremyll Battery up to fresh water, rare below Saltash. Carrying ova throughout year, especially reproductive, 7.11.28 (E.P.)

Family **Metridiidae****METRIDIA LUCENS** Boeck [*Sars*, 1903, IV, p. 113]

One specimen from neighbourhood of Plymouth, Aug. 1889, not rare from Whitsand B., Aug. 1903 (A.M.N. and T.S.): occasionally in water, outside Sound (M.V.L.): 1925, Apr. to Aug., below 15 m., 2-3 m. E. of Eddystone (F.S.R.)

Family **Arietellidae****PARAMISOPHRIA CLUTHAE** Scott [*Sars*, 1903, IV, p. 128]

Mewstone (R.G.)

Family **Pseudocyclopidae****PSEUDOCYCLOPS OBTUSATUS** Brady [*Sars*, 1903, IV, p. 131]

Very rare in gatherings from the Cattewater, Plymouth, Aug. 1899; in another from Sound, Aug. and in a third from Salcombe, 9.9.03 (A.M.N. and T.S.): off Drake's Island, bottom (R.G.)

Family **Candaciidae****CANDACIA ARMATA** Boeck [*Sars*, 1903, IV, p. 135]

Off Penlee Pt. Aug. 1889; Whitsand B., Aug. 1903 (A.M.N. and T.S.); 1916, rare through the winter, common July, Sept. (M.V.L.): 1918, June-Oct. (G.E.W.): 1919, March, Sept.; 1920, Sept.; 1921, Apr. to Dec.: 1922, Jan.-July; 1925, Jan.-Sept.; 1928, Oct. common; inside and outside Sound, Station E. 1, near bottom (M.V.L.): 1925, Apr.-Aug., usually below 20 m. in the daytime, largest catch Aug. 6th (F.S.R.)

Family **Pontellidae****ANOMALOCERA PATERSONI** Templeton [*Sars*, 1903, IV, p. 139]

Off Penlee Pt. Aug. 1889 (A.M.N. and T.S.): Plymouth, 1888-9, abundant in autumn and late summer, absent in winter (G.C.B.): 1904, July (L.H.G.): 1915, from Sept. to beginning of Nov., not common (M.V.L.): 1918, Jan., Mar., July, Sept. (G.E.W.): 1919, June-Sept.; 1920, July-Oct.; 1921, May-Oct.; 1922, May-Aug.; 1925, Apr.-Aug., very common Aug.; 1928, common June-Aug.; inside and outside Sound, Station E. 1 (M.V.L.): shows a decided preference for surface layers, sometimes deeper down: June-Aug. 1925, largest catch Aug. (F.S.R.)

LABIDOCERA WOLLASTONI (Lubbock) [*Sars*, 1903, IV, p. 142]

Off Breakwater, Aug. 1903 (A.M.N. and T.S.) : Plymouth, 1902, Dec. ; 1904, Apr.-July (L.H.G.) : nr. Eddystone in small numbers, Aug. and Oct. 1888 (G.C.B.) : 1916, not common, in July (M.V.L.) : 1918, Apr.-Oct., common Apr. and May (G.E.W.) : 1919, Apr.-Sept. ; 1920, Sept. ; 1921, Mar.-July ; 1922, May-Oct. ; 1925, Apr.-June ; 1928, June ; inside and outside Sound (M.V.L.)

Family **Parapontellidae****PARAPONTELLA BREVICORNIS** (Lubbock) [*Sars*, 1903, IV, p. 145]

Mewstone and Whitsand B., Aug. 1880 (A.M.N. and T.S.) : Nr. Eddystone, few specimens, Sept. 1888, the Cattewater, Mar. 1889 (G.C.B.) : Plymouth, rare, Mar.-Apr. 1889 (P.T.C.) : 1903, May-July ; 1904, Feb.-May, July ; rare in winter (L.H.G.) : 1916, common in Feb. and Mar., and occasionally in May, otherwise rare ; absent from Oct. 1915 to Feb. 1916 ; 1918, Apr.-June abundant, present Aug., Sept. (G.E.W.) : inside and outside Sound (M.V.L.) : Hamoaze, No. 12 Buoy, plankton, 9.10.28 (E.P.)

SALCOMBE. July 1875 (A.M.N. and T.S.)

Family **Acartiidae****ACARTIA CLAUSI** Giesbrecht [*Sars*, 1903, IV, p. 150]

Common (A.M.N. and T.S.) : Plymouth, 1899, Jan., rare, Mar.-Apr., more or less abundant, June-Aug., common, Sept.-Oct., in fair numbers, Nov.-Dec., very rare (P.T.C.) : 1903, except during Mar. and May ; 1904, Jan.-July (L.H.G.) : the only *Acartia* noted in 1916, exceedingly abundant most of the year, very common on and off from May to the beginning of Jan., and very seldom absent altogether ; 1917-18, Feb.-Dec., common Sept.-Oct. ; 1919, Jan.-Sept., very common Apr.-Sept. ; 1920, May-Dec., very common June ; 1921, Jan.-Aug., very common Apr.-July ; 1922, Jan.-Dec., very common Mar.-Oct. except Sept. ; 1923, Station E. 1 exceedingly abundant ; 1928, common almost the whole year ; inside and outside Sound, Station E. 1 (M.V.L.) : Hamoaze No. 1 Buoy, plankton, off Neille Pt., Black Buoy, R. Tamar, 20.7.28, 7.11.28 (E.P.)

ACARTIA DISCAUDATA Giesbrecht [*Sars*, 1903, IV, p. 152]

Plymouth, 1903 (A.M.N. and T.S.) : West Ch., surface, 2 specimens, females, 29.3.07 (W.B.) : occasionally in Sound (M.V.L.)

SALCOMBE. Sparingly, 1875 (A.M.N. and T.S.)

ACARTIA BIFILOSA (Giesbrecht) [*Giesbrecht & Schmeil*, 1898, p. 153]

R. Tamar, rare off R. Tavy, increasing in abundance towards and disappearing about 1 mile below Calstock, 11.7.28, 7.11.28 (E.P.)

PARACARTIA GRANI G. O. Sars [*Sars*, 1921, VII, p. 16]

Three specimens, 2 females, one male, Cawsand B., 5-6 fms., 17.8.03 (A.M.N. and T.S.)

Sub-Order *Harpacticoida*Family **Misophriidae****MISOPHRIA PALLIDA** Boeck [*Sars*, 1911, V, p. 6]

Sound, Aug. 1903 (A.M.N. and T.S.) : Asia Sh., 2.5.29, very rare (R.G.)

SALCOMBE. Taken sparingly, 1875 (A.M.N. and T.S.)

Family **Longipediidae**

LONGIPEDIA SCOTTI G. O. Sars [*Sars*, 1911, V, p. 11]

Sound, Cawsand B., Aug. 1903, moderately frequent (A.M.N. and T.S.):
Plymouth (G.C.B.) : 1916, once only in Feb., beyond Breakwater (M.V.L.)

SALCOMBE. From weeds, 1875 (A.M.N. and T.S.)

LONGIPEDIA MINOR Scott [*Sars*, 1911, V, p. 12]

Sound, Aug. 1903 (A.M.N. and T.S.) : 1916, once in tow-net and once centrifuge, outside Breakwater (M.V.L.) : R. Tamar, Hole's Hole ; among *Bowerbankia imbricata*, Neille Pt. in pool, 9.10.28 (E.P.)

SALCOMBE. 1875 (A.M.N. and T.S.)

Larvae of *Longipedia* spp. in tow-nets, July, Aug. (Gurney, 1930, p. 461)

CANUELLA PERPLEXA Scott [*Sars*, 1911, V, p. 17]

Whitsand B., Aug. 1903 (A.M.N. and T.S.)

SUNARISTES PAGURI Hesse [*Sars*, 1911, V, p. 15]

Mewstone, in *Pagurus* shells (whelks) (R.G.)

Family **Cerviniidae**

ZOSIME TYPICA Boeck [*Sars*, 1911, V, p. 27]

Sparingly from Jennycliff B., 14.8.03 (A.M.N. and T.S.)

Family **Ectinosomidae**

ECTINOSOMA MELANICEPS Boeck [*Sars*, 1911, V, p. 34]

Mouth of Yealm, Aug. 1889 ; Plymouth (A.M.N. and T.S.) : Cargreen landing, R. Tamar, 17.8.28 (E.P.) : among *Zostera*, Cawsand B., July 1929, abundant (R.G.)

SALCOMBE. Moderately frequent, July 1875 (A.M.N. and T.S.)

ECTINOSOMA SANSI Boeck [*Sars*, 1911, V, p. 30]

Cawsand B., Whitsand B., Aug. 1903. SALCOMBE. 1875 (A.M.N. and T.S.)

ECTINOSOMA CURTICORNE Boeck [*Sars*, 1911, V, p. 36]

Whitsand B. and Plymouth, Aug. 1903 (A.M.N. and T.S.)

ECTINOSOMA ERYTHROPS G. S. Brady [1880, II, p. 12]

Rare, 1875, Plymouth, 12.8.03. SALCOMBE (A.M.N. and T.S.)

ECTINOSOMA HERDMANI T. and A. Scott [*Sars*, 1911, V, p. 33]

Sparingly from Sound, 12.8.03 (A.M.N. and T.S.)

ECTINOSOMA NORMANI T. and A. Scott [*Sars*, 1911, V, p. 35]

Plymouth, 11 and 31.8.03 ; near Chequer Buoy ; Cawsand B. ; near Drake's I. ; Millbay ; 3 m. N.W. of Eddystone (A.M.N. and T.S.)

SALCOMBE. June, July, 1875 (A.M.N. and T.S.)

ECTINOSOMA GRACILE T. and A. Scott [1896, p. 429]

In sand, near low-water mark, very common (J.S.C.)

BRADYA TYPICA Boeck [*Sars*, 1911, V, p. 46]

Cattewater, Aug. 1889, among weed at low water, Plymouth 22.8.03 (A.M.N. and T.S.)

SALCOMBE. June, 1875 (A.M.N. and T.S.)

PSEUDOBADYA HIRSUTA (T. and A. Scott) [*Sars*, 1911, V, p. 356]

SALCOMBE. 1875, one specimen, in a surface tow-net (A.M.N. and T.S.)

PSEUDOBADYA FUSCA (T. and A. Scott) [*Sars*, 1911, V, p. 357]

Sound, near Chequer Buoy, 14.8.03. SALCOMBE. 30.6.75, rare (A.M.N. and T.S.)

PSEUDOBADYA MINOR (T. and A. Scott) [*Sars*, 1911, V, p. 41]

Nr. Drake's Is. ; R. Tamar, in brackish water and in Millbay, Aug. 1903 (A.M.N. and T.S.)

MICROSETELLA NORVEGICA (Boeck) [*Sars*, 1911, V, p. 44]

Plymouth, 23.8.03 (A.M.N. and T.S.) : Jan.-Feb. 1899, rare (P.T.C.)

Family **Harpacticidae****HARPACTICUS CHELIFER** (O. F. Müller) [*Sars*, 1911, V, p. 49]

West Ch., surface, 24.11.06, one specimen (W.B.) : New Gds., July 1929 (R.G.) : R. Tamar, Black Buoy, opposite R. Tavy, in weed, 1.8.28 (E.P.)

HARPACTICUS GRACILIS Claus [*Sars*, 1911, V, p. 52]

R. Tamar, Halton Quay, nr. surface, and down stream on shore and on buoys ; R. Lynher up to shore 100 yds. above Antony Creek, June-Oct. 1928 (E.P.)

HARPACTICUS FLEXUS Brady [*Sars*, 1911, V, p. 53]

R. Tamar, up to Hole's Hole on shore, on buoys and on weeds, June-Oct. 1928 (E.P.)

HARPACTICUS OBSCURUS Scott [1895, p. 170]

Cawsand B., other parts of Sound. SALCOMBE. 1875, 1903 (A.M.N. and T.S.)

TIGRIOPUS FULVUS (Fischer) [*Sars*, 1911, V, p. 54]

Moderately frequent, rock pools at and above H.W. (A.M.N. and T.S.) : Penlee Pt., rock pools above high-water mark, very abundant, salinity 26.6 per mille., carrying eggs, 19.8.28 (E.P.)

ZAUS SPINATUS Goodsir [*Sars*, 1911, V, p. 57]

Among weed at L.W., Plymouth (A.M.N. and T.S.) : West Ch., surface, one specimen, 15.2.07 (W.B.)

SALCOMBE. 1875 and 1903 (A.M.N. and T.S.)

ZAUS GOODSIRI Brady [*Sars*, 1911, V, p. 59]

One specimen Duke Rock Buoy, Plymouth (A.M.N. and T.S.)

Family **Peltidiidae**

ALTEUTHA INTERRUPTA (Goodsir) [Sars, 1911, V, p. 62]

Not common, Plymouth (A.M.N. and T.S.) : R. Lynher, off Shillingham Lake, 4 fms. ; R. Tamar on Black Buoy, opposite mouth of Tavy, among weed, 1.8.28 (E.P.)

ALTEUTHA DEPRESSA Baird [Sars, 1911, V, p. 64]

Plymouth, sparingly in Sound. SALCOMBE (A.M.N. and T.S. as *Eupelte purpurocincta*)

PELTIDIUM PURPUREUM Philippi [Sars, 1911, V, p. 66]

Duke Rock Buoy, one specimen, 11.2.07 (E.W.S.)

SALCOMBE. One specimen, 2.7.75 (A.M.N. and T.S.)

Family **Tegastidae**

TEGASTES FALCATUS Norman [Sars, 1911, V, p. 69]

Nr. Eddystone, and from Sound (A.M.N. and T.S.)

PARATEGASTES SPHAERICUS (Claus) [Sars, 1911, V, p. 73]

In neighbourhood of Plymouth (A.M.N. and T.S.)

Family **Porcellidiidae**

PORCELLIDIUM FIMBRIATUM Claus [Sars, 1911, V, p. 76]

Near Chequer Buoy, 23.8.03.

SALCOMBE. Dredged, 30.6.75 (A.M.N. and T.S.)

PORCELLIDIUM VIRIDE (Philippi) [1840, p. 190]

Among weeds at low water of spring tides, 22.8.03 (A.M.N. and T.S.)
Possibly identical with *P. fimbriatum* (See Sars, 1911, V, pp. 76 and 77)

Family **Idyidae**

IDYA FURCATA (Baird) [Sars, 1911, V, p. 88]

Generally distributed, Plymouth (A.M.N. and T.S. as Tisbe) : West Ch., surface, 1.2.07, single specimen, female with ovisac (w.B.) : R. Tamar, common on buoys and on shore, also in tow-net, up to Hole's Hole ; R. Lynher, up to shore above Ince Castle, 1928 (E.P.)

SALCOMBE. Generally distributed (A.M.N. and T.S.)

IDYA LONGICORNIS T. and A. Scott [Sars, 1911, V, p. 92]

Cawsand B. ; off Jennycliff, Aug. 1903 (A.M.N. and T.S., as Tisbe)

IDYA MINOR T. and A. Scott [Sars, 1911, V, p. 90]

Plymouth and SALCOMBE (A.M.N. and T.S., as Tisbe)

PSAMATHE LONGICAUDA Philippi [Sars, 1911, V, p. 83]

Plymouth and SALCOMBE (A.M.N. and T.S.)

ASPIDISCUS FASCIATUS Norman [Sars, 1911, V, p. 81]

What appears to be this species, Plymouth (A.M.N. and T.S.)

Family **Thalestridae****THALESTRIS LONGIMANA** Claus [*Sars*, 1911, V, p. 104]

Sound, 1903 (A.M.N. and T.S.): on buoys up to Black Buoy opposite mouth of Tavy, June- Oct., 1928 (E.P.)

SALCOMBE. 1875 (A.M.N. and T.S.)

PARATHALESTRIS CLAUSI (Norman) [*Sars*, 1911, V, p. 111]

Plymouth Sound and other places near Plymouth (A.M.N. and T.S.): on buoys among weed up to Black Buoy opposite mouth of Tavy, June-Oct. 1928 (E.P.)

SALCOMBE (A.M.N. and T.S.)

PARATHALESTRIS HARPACTICOIDES (Claus) [*Sars*, 1911, V, p. 112]

No. 15 Buoy, Hamoaze, in weed, very common, 19.7.28 (E.P.)

PARATHALESTRIS HIBERNICA (Brady & Robertson) [*Sars*, 1911, V, p. 113]

Nr. Drake's Is.; mouth of R. Yealm. SALCOMBE. Sparingly, 1875 (A.M.N. and T.S.)

PHYLLOTHALESTRIS MYDIS (Claus) [*Sars*, 1911, V, p. 116]

The Cattewater, Mar. 1889 (G.C.B.): mouth of R. Yealm, 7.7.89; Whitsand B., Cawsand B., nr. Drake's I., Aug. 1903 (A.M.N. and T.S.): New Gds., 20.7.29 (R.G.)

HALITHALESTRIS CRONI (Kröyer) [*Sars*, 1911, V, p. 118]

W. Channel, Sound, 20.2.19, single specimen, female (G.E.W.)

RHYNCHOTHALESTRIS RUFOCINCTA (Norman) [*Sars*, 1911, V, p. 120]

Cawsand B., nr. Duke Rk. Buoy, July 1889 (A.M.N. and T.S.): Duke Rk., 30.7.29 (R.G.)

SALCOMBE. Sparingly, June 1875, Sept. 1903 (A.M.N. and T.S.)

MICROTHALESTRIS FORFICULA (Claus) [*Sars*, 1911, V, p. 123]

Rock Pools at and above H.W. mark, Plymouth, 22.8.03, rather rare (A.M.N. and T.S.)

AMENOPHIA PELTATA Boeck [*Sars*, 1911, V, pp. 136, 376]

SALCOMBE. One or two specimens, 30.6.75, rare (A.M.N. and T.S.)

DACTYLOPUSIA TISBOIDES (Claus) [*Sars*, 1911, V, p. 126]

Plymouth (A.M.N. and T.S.): R. Tamar up to Black Buoy opposite R. Tavy; Rat. Is., on shore, 1.8.28, 27.9.28 (E.P.)

SALCOMBE (A.M.N. and T.S.)

DACTYLOPUSIA VULGARIS G. O. Sars [1911, V, p. 128]

Sparingly in Cattewater and mouth of R. Yealm; Sound, near Chequer Buoy (A.M.N. and T.S.): in pool at half tide, Neille Pt., R. Tamar, opposite mouth of Tavy, 1928 (E.P.)

SALCOMBE. Sept. 1903 (A.M.N. and T.S.)

DACTYLOPUSIA BREVICORNIS (Claus) [Sars, 1911, V, p. 130]

Mouth of R. Yealm, Aug. 1889; one or two other localities nr. Plymouth, Aug. 1903 (A.M.N. and T.S.)

SALCOMBE. 1875 (A.M.N. and T.S.)

DACTYLOPUSIA VALIDA Norman and T. Scott [1905, p. 293]

Nr. Rat Is., Plymouth, apparently not very common, no females observed (A.M.N. and T.S.)

DACTYLOPODELLA FLAVA (Claus) [Sars, 1911, V, p. 132]

Mouth of R. Yealm, Aug. 1889 (A.M.N. and T.S.): Rat Is., on shore, 19.7.28 (E.P.)

VALLENTINIA ORNATA (Norman and T. Scott) [1905, p. 294, as *Dactylopusia*; 1906, p. 172]

Mouth of R. Yealm, Aug. 1889: Sound, near Chequer Buoy (A.M.N. and T.S.)

SALCOMBE. Aug., Sept. 1903 (A.M.N. and T.S.)

MEGARTHRUM PURPUCINCTUM (Norman and T. Scott) [1905, p. 295, as *Dactylopusia*; 1906, p. 174]

SALCOMBE. One specimen, June 1875 (A.M.N. and T.S.)

WESTWOODIA NOBILIS (Baird) [Sars, 1911, V, p. 140]

Rat Is., nr. Plymouth, 1889; Sound, Aug. 1903 (A.M.N. and T.S.)

WESTWOODIA ANDREWII (T. Scott) [1894, p. 257, as *Pseudowestwoodia*]

Sparingly nr. Chequer Buoy and other places in Sound (A.M.N. and T.S.)

WESTWOODIA PYGMAEA (T. and A. Scott) [Sars, 1911, V, p. 143]

SALCOMBE. 7.7.87 (A.M.N. and T.S.)

Family **Diosaccidae***DIOSACCUS TENUICORNIS* (Claus) [Brady, II, p. 68; Sars, 1911, V, p. 146]

Near Rat I., nr. Drake's I. and other localities in the neighbourhood of Plymouth (A.M.N. and T.S.): Cawsand B. (R.G.)

SALCOMBE (A.M.N. and T.S.)

AMPHIASCUS SIMILIS (Claus) [Sars, 1911, V, p. 151]

Mouth of R. Yealm; Cawsand B., few specimens (A.M.N. and T.S., as *Dactylopusia*): 1916, rare, Sept., Oct., outside Breakwater (M.V.L.)

AMPHIASCUS MINUTUS (Claus) [Sars, 1911, V, p. 154]

SALCOMBE. 1875, rare; 1903 (A.M.N. and T.S.)

AMPHIASCUS DEBILIS (Giesbrecht) [Sars, 1911, V, p. 162]

Plymouth. SALCOMBE. Sparingly, 1875 (A.M.N. and T.S.)

AMPHIASCUS NORMANI Sars [1911, V, p. 383]

SALCOMBE. 1875 (A.M.N. and T.S., as *Stenhelius longirostris*)

- AMPHIASCUS SIMULANS (Norman and T. Scott) [*Sars*, 1911, V, p. 442 ; *Norman & Scott*, 1906, p. 143]
 Sound, near Chequer Buoy, 14.8.03 (A.M.N. and T.S.)
- AMPHIASCUS HISPIDUS (Brady) [*Sars*, 1911, V, p. 166]
 Mouth of R. Yealm, Aug. 1889 : Nr. Drake's Is., nr. Chequer Buoy, Millbay, Aug. 1903, rare (A.M.N. and T.S., as *Stenhelina*)
 SALCOMBE. July, 1875, rare (A.M.N. and T.S.)
- AMPHIASCUS IMUS (G. S. Brady) [*Sars*, 1911, V, p. 156]
 Very sparingly from Cattewater, 1889, and from Salcombe, 1875 (A.M.N. and T.S., as *Stenhelina*)
- STENHELIA NEGLECTA Norman & T. Scott [1905, p. 286 ; 1906, p. 144]
 Millbay, among Hydrozoa, Aug. 1903. SALCOMBE, 1875 (A.M.N. and T.S.)
- STENHELIA PALUSTRIS (G. S. Brady) [*Sars*, 1911, V, p. 185]
 Neighbourhood of Plymouth, Aug. 1903. SALCOMBE, 9.7.75 (A.M.N. and T.S. as *Delavalia*)
- STENHELIA GIESBRECHTI (T. & A. Scott) [*Sars*, 1911, V, p. 188]
 Jennycliff B., Cawsand B., Sound near Chequer Buoy, Aug. 1903 : SALCOMBE, rare, June, 1875 (A.M.N. and T.S., as *Delavalia*)
- STENHELIA NORMANI (T. Scott) [*Sars*, 1911, V, p. 189]
 Sound, near Chequer Buoy, Cawsand B., Aug. 1903 : SALCOMBE, 2.7.75 and Sept. 1903 (A.M.N. and T.S., as *Delavalia*)
- STENHELIA PYGMAEA Norman & T. Scott [1905, p. 284 ; 1906, p. 142]
 Nr. Eddystone, 31.8.03 ; apparently not common ; no males observed (A.M.N. and T.S.)
- STENHELIA REFLEXA T. Scott [*Sars*, 1911, V, p. 186 ; *T. Scott*, 1895, p. 166]
 SALCOMBE. 1875 (A.M.N. and T.S.)
- STENHELIA GIBBA Boeck [*Sars*, 1911, V, p. 181=*Beatricella mimica* (T. Scott)]
 Cattewater and nr. Duke Rk. Buoy, 1889 ; Cawsand B., Jennycliff B., Sound, near Chequer Buoy, Aug. 1903 (A.M.N. and T.S.)
 SALCOMBE. June 1875 (A.M.N. and T.S.)
- STENHELIA AEMULA (T. Scott) [1893, p. 204, as *Delavalia*]
 Jennycliff B. and near Chequer Buoy, Aug. 1903 : very sparingly from Salcombe, June 1875 and Sept. 1903 (A.M.N. and T.S., as *Beatricella*)
- Family Canthocamptidae**
- NITOCRA TYPICA Boeck [*Sars*, 1911, V, p. 212]
 Brackish water, Plymouth (A.M.N. and T.S., as *Canthocamptus palustris*)
 SALCOMBE (A.M.N. and T.S., as *N. oligochaeta*)
- NITOCRA TAU Giesbrecht [1882, p. 117]
 Cattewater, 1889 ; rock pools and above H.W. mark, Plymouth, Aug. 1903 : SALCOMBE, 1875 and Sept. 1903 (A.M.N. and T.S.)

MESOCHRA RAPIENS (Schmeil) [*Sars*, 1911, V, p. 210=*M. hirticornis* (T.Scott)]
 Rock pools nr. Plymouth, at and above H.W. (A.M.N. and T.S., as *Canthocamptus hirticornis*)

MESOCHRA PYGMAEA (Claus) [*Sars*, 1911, V, p. 209]

Nr. Drake's Is. and rock pools at and above H.W., Plymouth, Aug. 1903 : SALCOMBE, 1878 (A.M.N. and T.S., as *Canthocamptus parvus*)

MESOCHRA LILLJEBORGI Boeck [*Sars*, 1911, V, p. 208]

Rock pools at and above H.W., Plymouth, 22.8.03, in brackish water, Plymstock, 29.8.03 (A.M.N. and T.S.)

AMEIRA LONGIPES Boeck [*Sars*, 1911, V, p. 215]

Sound, near Chequer Buoy ; 3 m. N.W. of Eddystone and two other places near Plymouth : SALCOMBE, June, 1875 (A.M.N. and T.S.)

AMEIRA EXIGUA T. Scott (var.) [1894, p. 243]

Nr. Plymouth, Aug. 1903 (A.M.N. and T.S.)

Family Laophontidae

LAOPHONTE SIMILIS (Claus) [*Sars*, 1911, V, p. 244]

Shore adjoining Ince Castle, R. Lynher, 1.8.28 (E.P.)

LAOPHONTE PROXIMA G. O. Sars [1911, V, p. 250]

R. Tamar, Hole's Hole, among *Bowerbankia imbricata*, Cargreen Hard, 3/9.10.28 (E.P.)

LAOPHONTE STRÖMI (Baird) [*Sars*, 1911, V, p. 251]

On Black Buoy opposite mouth of Tavy ; Bull Pt., Hamoaze ; No. 15 Buoy, Hamoaze, 1.8.28, 19.9.28 (E.P.)

LAOPHONTE ABBREVIATA G. O. Sars [1921, VII, p. 72]

On mud $\frac{1}{2}$ mile above Cargreen, R. Tamar, 17.8.28 (E.P.)

LAOPHONTE CORNUTA Philippi [*Sars*, 1911, V, p. 235]

Plymouth Sound (R.G.)

LAOPHONTE SERRATA (Claus) [*Sars*, 1911, V, p. 237]

Mouth of R. Yealm, 1889 ; more recently in Sound ; Duke Rk. Buoy in 6 fms., Aug. 1889 ; Cawsand B., Aug. 1903 (A.M.N. and T.S., as *L. propinqua*) : Plymouth Sound (R.G.)

SALCOMBE. 1875 (A.M.N. and T.S.)

LAOPHONTE DEPRESSA T. Scott [*Sars*, 1911, V, p. 239]

SALCOMBE. One specimen, 30.6.75 (A.M.N. and T.S.)

LAOPHONTE INORNATA A. Scott [1902, p. 413 ; *Norman & Scott*, 1906, p. 157]

Sound, near Chequer Buoy : SALCOMBE (A.M.N. and T.S.)

LAOPHONTE HERDMANI A. Scott [1902, p. 414 ; *Norman & Scott*, 1906, p. 159]

Drake's Is., and other places in the neighbourhood of Plymouth, not uncommon : SALCOMBE, 1875 (A.M.N. and T.S.)

LAOPHONTE CURTICAUDA Boeck [*Sars*, 1911, V, p. 252]

Sparingly from mouth of R. Yealm, 1889, from one or two localities near Plymouth and in 1875 from SALCOMBE (A.M.N. and T.S.)

LAOPHONTE THORACICA Boeck [*Sars*, 1911, V, p. 240]

In 6 fms. nr. Duke Rk. Buoy, Aug. 1889; Sound, near Chequer Buoy and 3 m. N.W. of Eddystone, Aug. 1903: SALCOMBE, 1875 (A.M.N. and T.S.)

LAOPHONTE ELONGATA Boeck [*Sars*, 1911, V, p. 241]

Plymouth Sound (R.G.)

LAOPHONTE LONGICAUDATA Boeck [*Sars*, 1911, V, p. 243]

3 m. N.W. of Eddystone, 31.8.03, frequent: SALCOMBE, 1875, rare (A.M.N. and T.S.)

LAOPHONTE HISPIDA (Brady & Robertson) [*G. S. Brady*, 1880, II, p. 85]

Cawsand B., Sound, near Chequer Buoy, Aug. 1903: SALCOMBE, 1875 (A.M.N. and T.S.)

LAOPHONTE INOPINATA T. Scott [*Sars*, 1911, V, p. 263]

Plymouth in rock pools at and above high-water mark, 31.8.03, one specimen (A.M.N. and T.S.)

LAOPHONTOPSIS LAMELLIFERA (Claus)=*Laophonte lamellifera* Brady [*Sars*, 1911, V, p. 266]

Whitsand B., Jennycliff B., Sound, near Chequer Buoy, Aug. 1903, not uncommon (A.M.N. and T.S.): Mewstone (R.G.)

SALCOMBE. 1875 (A.M.N. and T.S.)

LAOPHONTODES BICORNIS A. Scott [1896, p. 147]

Sound, rare (A.M.N. and T.S.)

LAOPHONTODES TYPICUS T. Scott [1894, p. 249]

Cawsand B., Sound, near Chequer Buoy (A.M.N. and T.S.)

NORMANELLA DUBIA (Brady & Robertson) [*Sars*, 1911, V, p. 278, as *N. minuta* Boeck]

3 m. N.W. of Eddystone: SALCOMBE (A.M.N. and T.S.)

PLATYCHELIPUS LITTORALIS G. S. Brady [*Sars*, 1911, V, p. 274]

Whitsand B., 31.8.03, rare (A.M.N. and T.S.)

Family Cletodidae

CLETODES LONGICAUDATUS (Boeck) [*Sars*, 1911, V, p. 286]

Nr. Eddystone in 30 fms., 30.7.89; Whitsand B., 31.8.03, rare: SALCOMBE, 30.6.75 (A.M.N. and T.S.)

CLETODES LIMICOLA G. S. Brady [*Sars*, 1911, V, p. 283]

Nr. Eddystone in 30 fms., 30.6.89; Sound, in Jennycliff B., near Chequer Buoy, Aug. 1903, not common: SALCOMBE, 30.6.75 (A.M.N. and T.S.)

CLETODES PERPLEXUS T. Scott [*Sars*, 1921, VII, p. 78]

In a gathering from the neighbourhood of Plymouth, 14.8.03 : SALCOMBE, 30.6.75 (A.M.N. and T.S.)

CLETODES CURVIROSTRIS T. Scott [1894, p. 250]

Sound, in 4-6 fms., 12.8.03, very rare (A.M.N. and T.S.)

CLETODES TENUIPES T. Scott [*Sars*, 1911, V, p. 284]

Cawsand B., off Batten Pier, rare : SALCOMBE (A.M.N. and T.S.)

EURYCLETODES LATUS (T. Scott) [*Sars*, 1911, V, p. 294]

3 m. N.W. of Eddystone, 31.8.03 (A.M.N. and T.S.)

EURYCLETODES SIMILIS (T. Scott) [*Sars*, 1911, V, p. 295]

Very sparingly at Plymouth and SALCOMBE (A.M.N. and T.S.)

ENHYDROSOMA PROPINQUUM (Brady) [*Sars*, 1911, V, p. 300]

Sparingly from Plymouth (A.M.N. and T.S., as *Cletodes*) : Hamoaze and No. 12 Buoy ; R. Lynher, 100 yds. above Antony Creek, 27.9.28, 20.7.28 (E.P.)

SALCOMBE. Sparingly (A.M.N. and T.S.)

ENHYDROSOMA CURTICAUDATUM Boeck [*Sars*, 1911, V, p. 298]

Sound, 4-6 fms., 12.8.03, very rare (A.M.N. and T.S., as *Cletodes hirsutipes*)

RHIZOTHRIX CURVATA Brady & Robertson [*Sars*, 1911, V, p. 303]

Whitsand B., SALCOMBE, 1875 (A.M.N. and T.S., as *Enhydrosoma*)

RHIZOTHRIX GRACILIS (T. Scott) [*Sars*, 1911, V, p. 430]

Whitsand B. (A.M.N. and T.S., as *Enhydrosoma*)

HETEROPSYLLUS CURTICAUDATUS T. Scott [1894, p. 252]

Duke Rk. Buoy 1889 : off Jennycliff B., near Chequer Buoy, 1903 : SALCOMBE, 1875, 1903 (A.M.N. and T.S.)

Family **Cylindropsyllidae**

CYLINDROPSYLLUS LAEVIS Brady [*Sars*, 1911, V, p. 321]

Mewstone mud (R.G.)

Family **Metidae**

METIS IGNEA Philippi [*Sars*, 1911, V, p. 345]

Rock pools, Plymouth, 22.8.03, rare.

SALCOMBE. Two fine specimens, male and female in surface tow-net, July 1875 (A.M.N. and T.S., as *Ilyopsyllus coriaceus*)

Family **Tachidiidae**

TACHIDIUS BREVICORNIS Lilljeborg [*Sars*, 1911, V, p. 328]

SALCOMBE, 9.7.75, rare (A.M.N. and T.S., as *T. discipes*)

TACHIDIUS LITTORALIS Poppe [*T. Scott*, 1892, p. 250, as *T. crassicornis*]

R. Tamar, 17.8.03 (A.M.N. and T.S.)

DANIELSSSENIA TYPICA Boeck [*Sars*, 1911, V, p. 336]

From 6 fms., nr. Duke Rk. Buoy, Aug. 1889 (A.M.N. and T.S.)

THOMPSONULA HYAENAE (I. C. Thompson) [*T. Scott*, 1893, p. 202, as *Jonesiella*]

Whitsand B., 31.8.03 (A.M.N. and T.S.)

ROBERTSONIA TENUIS (Brady & Robertson) [*Sars*, 1911, V, p. 334; *G. S. Brady*, 1880, II, p. 25]

Plymouth Sound, near Chequer Buoy and Jennycliff B., Aug. 1903 :
SALCOMBE, 1875 (A.M.N. and T.S.)

EUTERPINA ACUTIFRONS (Dana) [*Sars*, 1921, VII, p. 97]

Sound ; 2½ m. off Breakwater and nr. Mewstone, 1903 (A.M.N. and T.S.) : 1889, very abundant late winter and spring (G.C.B.) : 1899, Jan.-Feb. rare, Mar.-May somewhat rare, July fairly plentiful, Aug. rare, Sept. fairly common, Oct.-Dec. more or less rare (P.T.C.) : 1916 rare Oct. to Dec. (M.V.L.) : 1917 Sept., Dec. (G.E.W.) : 1919 Jan. ; 1920 common Aug., Sept. ; 1921, Nov. ; 1922 common, Nov.-Jan. ; inside and outside Sound, Station E. 1 (M.V.L.) : R. Tamar in plankton as far up as near Halton Quay, June-Oct. 1928 (E.P.)

Family **Clytemnestridae****CLYTEMNESTRA ROSTRATA** (G. S. Brady) [*Giesbrecht*, 1892, p. 566, 572]

Cattewater, Aug. 1889 (A.M.N. and T.S.) : near Eddystone (L.H.G.)

Sub-Order *Cyclopoida*Family **Oithonidae****OITHONA PLUMIFERA** Baird [*Giesbrecht*, 1892, pp. 537 and 548]

Very abundant, Feb.-Apr., practically absent during late summer and autumn, 1888-9 (G.C.B.) : West Ch. surface, 30.11.06, single specimens (W.B.) : 1916, rare, Feb.-May, Sept. (M.V.L.) : 1917, Oct.-Nov., beyond Breakwater (G.E.W.) : 1921, Oct. (M.V.L.)

OITHONA HELGOLANDICA Claus=*Oithona similis* Claus [*Sars*, 1918, VI, p. 8]

Plymouth district (A.M.N. and T.S.) : 1899, more or less common throughout the year (P.T.C.) : 1915-16, more or less common throughout the year except from Nov. to Jan., very common in the middle of Feb., and the middle of May (M.V.L.) : 1917, July-Oct., common July ; 1918, Feb.-Apr. (G.E.W.) : 1919, Mar.-Sept. ; 1920, May-Oct. ; 1921, Jan.-Dec., very common Apr., common Aug. ; 1921, at Station E. 1 ; 1922, Jan.-Dec., common July ; 1925, Mar.-Aug. ; 1928, July-Oct., common July ; inside and outside Sound, Station E. 1 (M.V.L.) : as far as Black Buoy off Tavy, R. Tamar ; as far as Antony Passage, R. Lynher, June-Oct. 1928 (E.P.)

SALCOMBE. 1875 (A.M.N. and T.S.)

OITHONA NANA Giesbrecht [1892, pp. 538 and 549]

Plymouth and Whitsand B. 1903 (A.M.N. and T.S.) : 1916 rare, Jan.-May, outside Breakwater (M.V.L.)

Family **Cyclopinidae****CYCLOPINA LONGICORNIS** Boeck [*Sars*, 1918, VI, p. 12]

Sound, near Chequer Buoy, Cawsand B. 1903 (A.M.N. and T.S., as *C. littoralis*): Plymouth, few specimens Apr. 1889 (G.C.B.): Hamoaze, opposite Lynher in plankton from various depths; St. John's Lake, 20.7.28, 16.9.28 (E.P.)

SALCOMBE. 1875 (A.M.N. and T.S.)

CYCLOPINA GRACILIS Claus [*Sars*, 1918, VI, p. 11]

Sound, near Chequer Buoy, off Batten Pier and rock pools in Sound:

SALCOMBE, 1875, 1903 (A.M.N. and T.S.)

CYCLOPINA PYGMAEA Sars [1918, VI, p. 210]

Plymouth Sound (R.G.)

Family **Cyclopidae****EURYTE LONGICAUDA** Philippi [*Sars*, 1918, VI, p. 24]

Off Duke Rk. Buoy; mouth of Yealm, Aug. 1899; Millbay, Cawsand B. and other gatherings from Plymouth, Aug. 1903, nowhere common: SALCOMBE, June, 1875 (A.M.N. and T.S.)

HALICYCLOPS AEQUOREUS (Fischer) [*Brady*, 1880, I, p. 119]

Cattewater, Aug. 1889; brackish water Plymstock; Millbay and in rock pools at and above high water at Plymouth (A.M.N. and T.S.)

Family **Ascomyzontidae****ASCOMYZON LATUM** (Brady) [*Sars*, 1918, VI, p. 90]

Sparingly from mouth of River Yealm, 1889; roots of *Laminaria* and among Hydrozoa at extreme low water in the neighbourhood of Plymouth, Aug., and SALCOMBE, Sept. 1903; found living on *Echinus esculentus* and sponges (A.M.N. and T.S., as *Asterocheres echinicola*)

ASCOMYZON BOECKI (Brady) [*Sars*, 1918, VI, p. 88]

With *A. latum* from mouth of River Yealm, 1889, and from SALCOMBE, 8.9.03; apparently rare (A.M.N. and T.S.)

ASCOMYZON SUBERITIS (Giesbrecht) [1899, p. 100]

Its usual habitat is the water passages of *Suberites domuncula* and probably other sponges (A.M.N. and T.S., as *Asterocheres*)

SALCOMBE. 9.9.03 (A.M.N. and T.S.)

DERMATOMYZON NIGRIPES (Brady and Robertson) [*Sars*, 1918, VI, p. 95]

Mouth of River Yealm, Aug. 1889; also more recently in Sound: SALCOMBE, June 1875 (A.M.N. and T.S.)

RHYNCHOMYZON PURPUROCINCTUM (T. Scott) [*Sars*, 1918, VI, p. 98]

SALCOMBE. One specimen, June 1875; another Sept. 1903 (A.M.N. and T.S.)

COLLOCHERES GRACILICAUDA (Brady) [*Sars*, 1918, VI, p. 101]

One specimen Sound, 19.8.03, one from SALCOMBE, 9.9.03 (A.M.N. and T.S.)

ACONTIOPHORUS SCUTATUS (Brady & Robertson) [*Sars*, 1918, VI, p. 110]
Nr. Duke Rk. 1889; Jennycliff B., Aug. 1903 (A.M.N. and T.S.): New
Gds., July 1929 (R.G.)

SALCOMBE. 1875 and 1903 (A.M.N. and T.S.)

SCOTTOCHERES ELONGATUS (T. & A. Scott) [*Sars*, 1918, VI, p. 107]

One specimen from Corallina near L.W. at Plymouth, one from material
washed from *Chlamys* (*Aequipecten*) *opercularis* from same place, Aug.
1903 (A.M.N. and T.S.)

MESOCHERES ANGLICUS Norman & Scott [*Sars*, 1918, VI, p. 103; *Norman &
Scott*, 1906, p. 194]

Sound, one specimen, 12.8.03, appears to be a parasite (A.M.N. and T.S.)

NICOTHOË ASTACI Audouin & Milne Edwards [*Leigh-Sharpe*, 1926 a, p. 148]

Plymouth, on gills of lobster (A.M.N. and T.S.): on the gills of lobster,
12.9.11; during September egg sacs with embryos well advanced; one
female lobster examined with 100 parasites on each side, Plymouth (G.W.S.)

Family Dyspontiidæ

DYSPONTIUS STRIATUS Thorell [*Sars*, 1918, VI, p. 118]

Dredged at mouth of R. Yealm 1889; 3 m. N.W. of Eddystone, 31.8.03:
dredged from Salcombe, 30.6.75 (A.M.N. and T.S.)

BRADYPONTIUS MAGNICEPS (Brady) [*Sars*, 1918, VI, p. 124]

One specimen, nr. Duke Rk., July 1889 (A.M.N. and T.S.)

Family Artotrogidæ

ARTOTROGUS ORBICULARIS Boeck [*Sars*, 1918, VI, p. 133]

One specimen in tow-net, carrying clusters of eggs, Aug. 1929 (D.A.)

Family Cancerillidæ

CANCERILLA TUBULATA Dalyell [*Sars*, 1918, VI, p. 139]

One specimen from mouth of Yealm, Aug. 1889 (A.M.N. and T.S., as
Caligidium vagabundum Claus)

Family Clausidiidæ

HEMICYCLOPS PURPUREUS Boeck [*Sars*, 1918, VI, p. 146]

One specimen about 3 m. N.W. of Eddystone, 31.8.03 (A.M.N. and T.S., as
Hersiliodes littoralis)

Family Lichomolgidæ

LICHOMOLGUS FORFICULA Thorell [*Sars*, 1918, VI, p. 153]

In the branchial chamber of *Phallusia mamillata*, Plymouth, Aug.
1903 (A.M.N. and T.S.)

LICHOMOLGUS FURCILLATUS Thorell [*Brady*, 1880, III, p. 49]

Dredged 3 m. N.W. of Eddystone in 20-25 fms., 31.8.03 (A.M.N. and
T.S., as *Pseudanthessius*)

MACROCHEIRON FUCICOLUM Brady [*Sars*, 1918, VI, p. 163]

Mouth of R. Yealm, 1889, rare; very sparingly in gatherings from Sound; off Jennycliff B.; 3 m. N.W. of Eddystone in 20-25 fms., Aug.: SALCOMBE, Sept. 1903 (A.M.N. and T.S., as *Lichomolgus*)

PSEUDANTHESSIUS GRACILIS Claus [*Sars*, 1918, VI, p. 167]

Sound, near Chequer Buoy, Aug. 1903: SALCOMBE, 1875 and Sept. 1903, sparingly (A.M.N. and T.S.)

PSEUDANTHESSIUS THORELLI (Brady & Robertson) [*Brady*, 1880, III, p. 47, as *Lichomolgus*]

Very rare in material washed from the animals of *Chlamys (Aequipecten) opercularis*, Plymouth, 2.9.03, and SALCOMBE, 9.9.03 (A.M.N. and T.S.)

HERMANNELLA MAXIMA (I. C. Thompson) [1893, p. 208, as *Lichomolgus*]

One or two specimens from *Chlamys (Aequipecten) opercularis*, Plymouth, 2.9.03 (A.M.N. and T.S.)

HERMANNELLA ARENICOLA (Brady) [1880, III, p. 46, as *Lichomolgus*]

A single specimen, not fully mature, dredged at SALCOMBE, 30.6.75 (A.M.N. and T.S.)

HERMANNELLA PARVA Norman & T. Scott [*Sars*, 1918, VI, p. 176]

Sound, among Hydrozoa, nr. low-water, Aug. 1903 (A.M.N. and T.S.)

Family **Oncaeidae**

ONCAEA MEDITERRANEA (Claus) [*Giesbrecht*, 1892, pp. 591 and 602]

Plymouth, Aug. 1903 (A.M.N. and T.S.): Plymouth (G.C.B., P.T.C.)

ONCAEA MINUTA Giesbrecht [*Sars*, 1918, VI, p. 217]

Plymouth, 1899, very rare Jan.-Mar., rare Dec. (P.T.C.)

ONCAEA SUBTILIS Giesbrecht [1892, pp. 591, 603]

Plymouth, Mar. 1899, very rare (P.T.C.)

ONCAEA VENUSTA Philippi [*Giesbrecht*, 1892, pp. 590, 602]

In tow-net off S. coasts of Devon and Cornwall (L.H.G.)

ONCAEA ORNATA Giesbrecht [1892, pp. 591, 604]

In tow-net off S. coasts of Devon and Cornwall (L.H.G.)

LUBBOCKIA ACULEATA Giesbrecht [1892, pp. 606, 611]

Off coasts of Devon, 1903 (L.H.G.)

LUBBOCKIA SQUILLIMANA Claus [*Giesbrecht*, 1892, pp. 606-611]

Off the S. coast of Devon, 1903 (L.H.G.)

Family **Corycaidae**

CORYCAEUS ANGLICUS Lubbock [*Sars*, 1918, VI, p. 196]

Plymouth (G.C.B., P.T.C., T.V.H., A.M.N. and T.S.): 1915-16, present most of the year but rarest in summer; through Oct. and Nov. it agrees with *Pseudocalanus* in abundance, but becomes scarce in Dec. (M.V.L.):

1917-18, Jan. to Oct., common March, 1917 (G.E.W.): 1920, Aug.-Dec., common Nov.; 1921, Jan.-Dec., common Nov.; 1922, Jan.-Dec., common Apr., Nov., Dec.; 1924, common Nov.; 1925, Mar.-July; 1928, common July-Oct.; inside and outside Sound, Station E. 1 (M.V.L.): 6 fm. depth, no. 12 Buoy in Hamoaze, opposite mouth of Lynher, abundant, 9.9.28 (E.P.)

CORYCAEUS VENUSTUS Dana [Giesbrecht, 1892, pp. 659, 674]

Plymouth, Nov. 1889, very rare (P.T.C.)

Sub-Order *Monstrilloida*

Family **Monstrillidae**

MONSTRILLA LONGICORNIS I. C. Thompson [Sars, 1921, VIII, p. 11]

One specimen, 18.11.07, one specimen, 29.11.07, Sound, tow-nets (W. DE M.)

MONSTRILLA HELGOLANDICA Claus [Sars, 1921, VIII, p. 18]

Plymouth, tow-net, July-Sept., 2 specimens, 1902 (R.G.)

CYMBASOMA LONGISPINOSUM (Bourne) [Sars, 1921, VIII, p. 24]

Plymouth (G.C.B.): tow-net, off Penlee Pt., 21.10.08, carrying eggs (A.J.S.): tow-net, Sound, one specimen, 2.10.11 (J.H.O.): once only, Sept. 1915, with eggs (M.V.L.): R. Lynher, above Antony Passage, mid-water in main channel; R. Tamar, as far as 100 yds. above Antony Creek; mid-stream off Neille Pt., 1.8.28, most of eggs shed; no eggs 9.10.28; not abundant but regularly present (E.P.)

CYMBASOMA THOMPSONI (Giesbrecht) [Sars, 1921, VIII, p. 23]

Off Drake's Island, bottom (R.G.)

SALCOMBE. 1875 (A.M.N. and T.S., as *Thaumaleus*)

CYMBASOMA FILOGRANARUM (Malaquin) [1901, p. 110, as *Haemocera*]

Internal parasite of *Filograna implexa*, Mewstone Gd., 10.8.28; constantly 1924-28. Although *Filograna* is abundant round Plymouth this is the only place where the parasite occurs, and it is the operculate variety of *Filograna* on this ground (G.H.F.)

Sub-Order *Notodelphoida*

Family **Notodelphidae**

NOTODELPHYS ALLMANI Thorell [Sars, 1921, VIII, p. 31]

Plymouth, Sept. 1903, in branchial chambers of large Ascidians (A.M.N. and T.S.): in *Asciidiella aspersa*, beach at L.W., 100 yds. above Antony Creek, and shore above Ince Castle, R. Lynher; Hole's Hole, R. Tamar; St. John's Lake, opposite Rifle Range; Sept.-Oct. 1928, carrying eggs (E.P.)

SALCOMBE. Sept. 1903, in Ascidians (A.M.N. and T.S.)

NOTODELPHYS PRASINA Thorell [Sars, 1921, VIII, p. 37]

Plymouth, in the branchial chamber of *Phallusia mamillata*, Aug. 1903 (A.M.N. and T.S.)

Family **Doropygidae**

DOROPYGUS PULEX Thorell [Sars, 1921, VIII, p. 42]

Plymouth, in the branchial chambers of *Polycarpa*, 3.9.03 (A.M.N. and T.S.)

NOTOPTEROPHORUS PAPILIO Hesse [Sars, 1921, VIII, p. 55]

Plymouth, Sept. 1903, sometimes not uncommon in the branchial chamber of large ascidians (A.M.N. and T.S.) : in branchial cavity of *Ascidia mentula*, Revelstoke Pt., embryos being liberated, 26.4.29 (D.A.)

ASCIDICOLA ROSEA Thorell [Sars, 1921, VIII, p. 64]

In *Ascidiella aspersa* from beach at L.W., 100 yds. R. bank, above Antony Creek, R. Lynher, 30.9.28 (E.P.)

SALCOMBE. 9.9.03 (A.M.N. and T.S.)

Family **Botryllophilidae**

BOTRYLLOPHILUS RUBER Hesse [T. Scott, 1901 b, p. 242]

SALCOMBE. Several specimens from fragments of *Botryllus*, Kingsbridge Estuary (A.M.N. and T.S.)

Family **Enterocolidae**

ENTEROCOLA FULGENS van Beneden [Canu, 1892, p. 216]

SALCOMBE. A few specimens from fragments of *Botryllus* and small ascidians, with *Botryllophilus* as above (A.M.N. and T.S.)

Sub-Order *Caligoida*Family **Caligidae**

CALIGUS RAPAX Milne Edwards [T. & A. Scott, 1913, I, p. 48]

Plymouth (A.M.N. and T.S.) : W. Channel, surface, tow-net, one male, 27.10.06 ; this species although a parasitic form frequently leaves its host and becomes free swimming ; 20.11.06, tow-net, one specimen (W.B.) : often found in tow-nets, both sexes, females with eggs ; inside and outside Sound (M.V.L.) : on scales of *Salmo trutta* (with *Lepeophtheirus stroemi*) in mouth of *Gadus morrhua*, rarely on surface of *Mugil capito*, male generally with female, but in smaller numbers (P.W.B.-S.) : on *Gobius sp.* (L.H.M.)

CALIGUS MINIMUS Otto [T. & A. Scott, 1913, I, p. 46]

Mouth and pharynx of *Morone labrax*, both sexes, June and Oct. (P.W.B.-S.)

CALIGUS CURTUS O. F. Müller [T. & A. Scott, 1913, I, p. 45]

Frequently in mouth of *Gadus morrhua*, surface of body of *Gadus minutus* (P.W.B.-S.)

CALIGUS CENTRODONTI Baird [T. & A. Scott, 1913, I, p. 50]

Tail and fins of *Pagellus centrodontus* (W.H.L.-S.)

CALIGUS DIAPHANUS Nordmann [*T. & A. Scott*, 1913, I, p. 60]

In quantities on inner surface of operculum of *Trigla hirundo* and *T. cuculus* (P.W.B.-S., L.H.M.)

CALIGUS GURNARDI Kröyer [*T. & A. Scott*, 1913, I, p. 52]

One specimen from gill cavity of *Trigla cuculus*, June (P.W.B.-S.)

CALIGUS PELAMYDIS Kröyer [*T. & A. Scott*, 1913, I, p. 57]

Inner surface of operculum of *Scomber scombrus* (P.W.B.-S., as *C. scomberi*, L.H.M.)

CALIGUS ZEI Norman and T. Scott [*T. & A. Scott*, 1913, I, p. 54]

Surface of body of *Zeus faber* (W.H.L.-S.)

PSEUDOCALIGUS BREVIPEDES (Bassett-Smith) [*T. & A. Scott*, 1913, I, p. 61]

Gill cavity and inner side of operculum of *Onos tricirratus* (P.W.B.-S.)

LEPEOPHTHEIRUS PECTORALIS (O. F. Müller) [*T. & A. Scott*, 1913, I, p. 64]

Pectoral fins of *Pleuronectes platessa*, *P. flesus*, *P. limanda* (P.W.B.-S., L.H.M.)

LEPEOPHTHEIRUS NORDMANNI Milne-Edwards [*T. & A. Scott*, 1913, I, p. 66]

On *Orthogoriscus mola*, Plymouth (C.S.B. in *Mus. Norman.*): surface of body of *Orthogoriscus mola* (P.W.B.-S.)

LEPEOPHTHEIRUS HIPPOGLOSSI (Kröyer) [*T. & A. Scott*, 1913, I, p. 67]

Surface of body of *Rhombus laevis* (L.H.M.)

LEPEOPHTHEIRUS THOMPSONI Baird [*T. & A. Scott*, 1913, I, p. 69]

Gills of *Rhombus maximus* and *R. laevis*, as many as 30 from one fish (P.W.B.-S., L.H.M., W.H.L.-S.)

LEPEOPHTHEIRUS POLLACHII Bassett-Smith [*T. & A. Scott*, 1913, I, p. 73]

Palate and back of tongue of *Gadus pollachius* and gills of *Molva vulgaris*, both sexes in quantity (P.W.B.-S., L.H.M.)

LEPEOPHTHEIRUS SALMONIS (Kröyer) [*T. & A. Scott*, 1913, I, p. 71]

Both sexes in quantity on surface of body of *Salmo salar* and *Salmo trutta*, Plymouth, June and July (P.W.B.-S., as *L. strömii*, L.H.M.)

TREBIUS CAUDATUS Kröyer [*T. & A. Scott*, 1913, I, p. 81]

Dorsal surface of head and nasal fossae of *Raia batis*, not common (P.W.B.-S.)

ELYTROPHORA BRACHYPTERA Gerstaecker [*T. & A. Scott*, 1913, I, p. 83]

From gills of a large *Orcynus thynnus*, 5 of each sex (P.W.B.-S.)

PANDARUS BICOLOR Leach [*T. & A. Scott*, 1913, I, p. 95]

Plymouth, 1889 (A.M.N.): a number taken from surface of *Scyllium catulus* (P.W.B.-S.)

CECROPS LATREILLEI Leach [*T. & A. Scott*, 1913, I, p. 98]

Two specimens in gills of *Orthogoriscus mola* (P.W.B.-S.)

ORTHAGORISCICOLA MURICATA (Kröyer) [T. & A. Scott, 1913, I, p. 100]

Surface of body of *Orthogoriscus mola*, (C.S.B.) : 18.7.20 (H.G.C.) : on caudal fin of *Orthogoriscus mola*, off Batten, 12.7.20 (R.S.C.)

Family Dichelestiidae

LERNANTHROPUS KRÖYERI van Beneden [T. & A. Scott, 1913, I, p. 110]

From gills of one *Morone labrax* in over a dozen examined (P.W.B.-S.)

HATSCHEKIA MULLI (van Beneden) [T. & A. Scott, 1913, I, p. 114]

Gills of *Mullus surmuletus*, a number of females (P.W.B.-S.)

CONGERICOLA PALLIDA van Beneden [T. & A. Scott, 1913, I, p. 124]

Gills of *Conger vulgaris*, not common (P.W.B.-S.)

Sub-Order Lernaeoidea

Family Lernaeidae

LERNAEA BRANCHIALIS L. [T. & A. Scott, 1913, I, p. 142]

Gills of *Gadus morrhua*, *G. aeglefinus*, *G. merlangus*, *Morone labrax* (P.W.B.-S.) : gills of *G. merlangus*, buccal cavity of *Callionymus lyra* (H.L.-S.)

LERNAEA LUSCI Bassett-Smith [T. & A. Scott, 1913, I, p. 144]

Gills of *Gadus luscus*, very common (P.W.B.-S.)

LERNAEENICUS SPRATTAE (Sowerby) [T. & A. Scott, 1913, I, p. 156]

Eye of *Clupea harengus* (P.W.B.-S., as *Lernaeonema monillaris*)

LERNAEENICUS ENCRASICOLA (Turton) [T. & A. Scott, 1913, I, p. 158]

Body of *Clupea alosa* (P.W.B.-S., as *Lernaeonema*)

Family Chondracanthidae

CHONDRACANTHUS CORNUTUS (O. F. Müller) [T. & A. Scott, 1913, I, p. 168]

Gills of *Lepidorhombus whiff*, *P. platessa* and *P. flesus*, many (P.W.B.-S.)

CHONDRACANTHUS SOLEAE Kröyer [T. & A. Scott, 1913, I, p. 170]

Gill cavities of *Solea vulgaris*, not common (P.W.B.-S.)

CHONDRACANTHUS ANNULATUS Olsson [T. & A. Scott, 1913, I, p. 169]

Female from cloacal aperture of a male *Galeus vulgaris*, Plymouth trawler, 23.9.09 (E.R.S.)

CHONDRACANTHUS DEPRESSUS T. Scott [T. & A. Scott, 1913, I, p. 172]

Gills of *Pleuronectes flesus* (L.H.M.)

CHONDRACANTHUS CLAVATUS Bassett-Smith [T. & A. Scott, 1913, I, p. 175]

Gills of *Pleuronectes microcephalus* (P.W.B.-S.)

CHONDRACANTHUS ZEI De la Roche [T. & A. Scott, 1913, I, p. 177]

In the anterior angle of the gill cavity of *Zeus faber*, very common (P.W.B.-S.)

CHONDRACANTHUS LOPHII Johnston [*T. & A. Scott*, 1913, I, p. 179]

Inside operculum and gills of *Lophius piscatorius*, nearly always present in well-grown fish (P.W.B.-S., W.H.L.-S., L.H.M.) : females with egg sacs from gills of *Lophius piscatorius* from Plymouth trawlers, 23.9.09 (E.R.S.)

CHONDRACANTHUS MERLUCCII (Holten) [*T. & A. Scott*, 1913, I, p. 180]

Mouth of *Merluccius merluccius*, very common (P.W.B.-S.)

ORALIEN TRIGLAE (Blainville) [*Leigh-Sharpe & Oakley*, 1927, p. 460 ; *T. & A. Scott*, 1913, I, p. 184, as *Medesicaste asellinum* L.]

Gills of *Trigla gurnardus*, *T. cuculus* and *T. hirundo*, Plymouth (P.W.B.-S., as Chondracanthus)

Family Splanchnotrophidae

SPLANCHNOTROPHUS GRACILIS Hancock and Norman [1863, p. 51]

Parasite on *Acanthodoris pilosa*, 3 females and several males on one, several males on others, Rame-Eddystone Gds., 12.7.06, otter-trawl (R.E.)

Family Lernaeopodidae

LERNAEOPODA SALMONEA (L.) [*T. & A. Scott*, 1913, I, p. 199]

One female on gills of *Salmo salar* (P.W.B.-S.)

LERNAEOPODA GALEI Kröyer [*T. & A. Scott*, 1913, I, p. 197]

Many from *Mustelus vulgaris*, *Galeus vulgaris* and *Acanthias vulgaris*, attached to soft skin behind pectoral and anal fins, and more particularly in the deep folds by the anal fins of the male, many specimens (P.W.B.-S.) : cloaca and claspers of *Galeus vulgaris* (W.H.L.-S.) : female from cloacal aperture of *Galeus vulgaris* male, female with large egg-sacs from skin beneath ventral fin of *Scyllium catulus* male, females from cloacal aperture of *Scyllium canicula* male, Plymouth trawler, 24.9.09 (E.R.S.)

LERNAEOPODA GLOBOSA Leigh-Sharpe [1918, p. 29]

Nasal fossae and outside spiracle of *Scyllium canicula*, 1918 (W.H.L.-S.)

LERNAEOPODA MUSTELICOLA Leigh-Sharpe [1919, p. 256]

Two female specimens, cloaca of *Mustelus vulgaris* (W.H.L.-S.)

LERNAEOPODA SCYLLICOLA Leigh-Sharpe [1916-18, p. 18]

Cloaca and claspers of *Scyllium canicula* (W.H.L.-S.)

BRACHIELLA OBESA (Kröyer) [*Leigh-Sharpe*, 1928, p. 25]

Gill arches of *Trigla gurnardus* (L.H.M.) : 5 females from tips of gill filaments of *Trigla cuculus*, 2 with a male each, Looe-Eddystone and outer Eddystone Gds., 4.6.27 (W.H.L.-S.)

CLAVELLA DEVASTATRIX Leigh-Sharpe [1925, p. 197]

Gills, pharynx and inside of operculum of *Gadus merlangus* (W.H.L.-S., L.H.M.)

CLAVELLA IADDA Leigh-Sharpe [1925, p. 196]

Skin, fins, tail, anus of *Gadus morrhua* (W.H.L.-S.)

- CLAVELLA INVICTA Leigh-Sharpe [1925, p. 197]
Skin, fins, tail, anus of *Gadus pollachius* (L.H.M.)
- CLAVELLA SCIATHERICA Leigh-Sharpe [1925, p. 195]
Buccal cavity, pharynx of *Gadus morrhua* (W.H.L.-s.)
- CLAVELLISA EMARGINATA (Kröyer) [T. & A. Scott, 1913, I, p. 218; Leigh-Sharpe, 1925]
Gill rakers of *Clupea alosa* (P.W.B.-s.)
- CLAVELLISA SCOMBRI (Kurz) [T. & A. Scott, 1913, I, p. 218; Leigh-Sharpe, 1925]
Gill arches of *Scomber scombrus* (L.H.M.)
- CLAVELLOPSIS PARADOXA (van Beneden) [T. & A. Scott, 1913, I, p. 222; Leigh-Sharpe, 1925]
Gills of *Scomber scombrus* (P.W.B.-s.)
- CLAVELLOPSIS (?) QUADRATA (Bassett-Smith) [T. & A. Scott, 1913, I, p. 223; Leigh-Sharpe, 1925]
Gill rakers of *Callionymus lyra* (P.W.B.-s.)
- BRACHIELLA BISPINOSA Nordmann [T. & A. Scott, 1913, I, p. 211]
Gill rakers of *Trigla gurnardus*, *T. cuculus* and *T. lyra* (P.W.B.-s.)
- BRACHIELLA MERLUCCII Bassett-Smith [T. & A. Scott, 1913, I, p. 207]
Points of gill rakers of *Merluccius merluccius* (P.W.B.-s.)
- BRACHIELLA THYNNI Cuvier [T. & A. Scott, 1913, I, p. 204]
Behind pectoral fins of *Euthynnus pelamys* (P.W.B.-s.)
- BRACHIELLA TRIGLAE Claus [T. & A. Scott, 1913, I, p. 209]
Gills of *Trigla gurnardus*, *T. cuculus* and *T. hirundo* (P.W.B.-s.)
- EPIBRACHIELLA IMPUDICA (Nordmann) [T. & A. Scott, 1913, I, p. 187, as Thysanote]
Inside of operculum of *Trigla gurnardus*, *T. cuculus* and *T. hirundo* (P.W.B.-s., as Brachiella, L.H.M.)
- PARABRACHIELLA INSIDIOSA Heller [T. & A. Scott, 1913, I, p. 206]
Gill rays of *Merluccius merluccius* (P.W.B.-s.)

Sub-Order *Herpyllobioida*

Family *Herpyllobiidae*

- HEDYPHANELLA SUPERBA Leigh-Sharpe [1926 b, p. 271]
On dorsal surface of *Gattyana cirrosa* (Pallas) (W.H.L.-s.)
- SARSILENIUM CRASSIROSTRIS (M. Sars) [Leigh-Sharpe, 1926 b, p. 272]
In C. D. Vallence's collection, Plymouth, dorsal surface of *Harmothoe impar*, immature females bearing males (W.H.L.-s.)
- PHALUSIELLA PSALLIOTA Leigh-Sharpe [1926 b, p. 274]
Dorsal surface of *Lagisca extenuata*, Plymouth (W.H.L.-s.)

PHALUSIELLA VERA Leigh-Sharpe [1926 b, p. 275]

Dorsal surface of *Malmgrenia castanea*, Plymouth (W.H.L.-s.)

SACCOPSIS ALLENI Brumpt [1897, p. 1464]

Plymouth, on *Polycirrus caliendrum* (E.B.)

Sub-Class CIRRIPIEDIA

Order THORACICA

Family Scalpellidae

SCALPELLUM SCALPELLUM (L.) [Darwin, 1851, I, p. 222, as *S. vulgare*]

Common, attached to hydroids, Plymouth (A.M.N.): common on Halcium, Antennularia, Aglaophenia, etc., 15-35 fms. (R.A.T., S.P.): Rame-Eddystone, about 25 fms. 30.3.21, trawled, nauplius still in egg, in mantle cavity; out of 5 specimens on a branch of Antennularia 2 were very small and had no signs of eggs, of the other 3, one had eggs in oviduct, the other had eggs in mantle cavity (W.H.P.)

Family Lepadidae

LEPAS ANATIFERA L. [Darwin, 1851, I, p. 73]

On drift wood, Devon (G.M.): on floating wood and on ships' bottoms and floating cork (T.V.H.): occasionally on drift wood, etc. (R.A.T., S.P.): many on a drifting buoy, brought in by W. Searle, 4.1.30 (M.V.L.)

LEPAS ANSERIFERA L. [Darwin, 1851, I, p. 81]

Drifted wood, Plymouth (Cocks, *vide* A.M.N. and T.S.)

CONCHODERMA AURITA (L.) [Darwin, 1851, I, p. 141]

On ships' bottoms stranded at Plymouth (T.V.H.): Plymouth, not native (A.M.N. and T.S.)

CONCHODERMA VIRGATA (Spengler) [Darwin, 1851, I, p. 146]

Found by Capt. Brown on ships' bottom at Plymouth; not native (A.M.N. and T.S.)

Family Verrucidae

VERRUCA STROEMIA (O. F. Müller) [Darwin, 1854, II, p. 518]

Common on shells, stones, etc., L.W.-35 fms., Sound; Stoke Pt. Gds.; Rame-Eddystone Gds.; etc. (S.P.)

Family Chthamalidae

CHTHAMALUS STELLATUS (Poli) [Darwin, 1854, II, p. 455]

Rocks between tide-marks, Sound, etc. (S.P.): Bull Pt., Hamoaze, on shore 19.7.28 (E.P.)

Breeding: Jan.-Mar.; Aug.-Sept. (W.G.)

Family Balanidae

BALANUS TINTINNABULUM (Linnaeus) [Darwin, 1854, II, p. 194]

Ships' bottoms at Plymouth; not native (Biol. Lab., A.M.N. and T.S.)

BALANUS SPONGICOLA Brown [*Darwin*, 1854, II, p. 225]

Off Plymouth on *Chlamys (Aequipecten) opercularis* (A.M.N.) : Rame-Eddystone Gds., attached to the upper valve of *C. opercularis* ; etc. (S.P.)

BALANUS AMPHITRITE Darwin [1854, II, p. 240]

On ships' bottoms, Plymouth ; not native (Biol. Lab., A.M.N. and T.S.)

BALANUS PORCATUS da Costa [*Darwin*, 1854, II, p. 256]

Young reared by Spence Bate at Plymouth (A.M.N. and T.S.)

BALANUS CREATUS Bruguière [*Darwin*, 1854, II, p. 261]

Plymouth (A.M.N.) : common in dredgings from Sound, etc., on stones and shells (S.P.) : Eddystone Gds. (E.J.A.) : R. Tamar up to Cargreen landing ; R. Lynher up to shore by Ince Castle, June-Oct. 1928 (E.P.)

BALANUS PERFORATUS Bruguière [*Darwin*, 1854, II, p. 231]

Abundant on rocks between tide-marks ; rocks under Laboratory ; Millbay Dock, on piles ; Drake's I. ; etc. (S.P.)

BALANUS BALANOIDES (L.) [*Darwin*, 1854, II, p. 267]

Rocks between tide-marks in Sound, etc. (S.P.) : R. Lynher up to shore by Ince Castle ; R. Tamar up to Cargreen Landing, June-Oct. 1928 (E.P.)

BALANUS IMPROVISUS Darwin [1854, II, p. 250]

R. Tamar, $\frac{1}{2}$ mile above Halton Quay, L.W. : R. Tiddy, St. German's Bridge, 14/22.9.28 (E.P.)

ACASTA SPONGITES Darwin [1854, II, p. 308]

Dredged from rough ground between Stoke Point and Revelstoke Point, in about 22 fms., 6.8.30, 5.9.30, coarse meshed dredge ; always found completely embedded in the sponge *Spongelia fragilis* (G.A.S.)

BALANUS NAUPLII, species not identified, common early spring and July, cypris stages spring and summer (M.V.L.)**PYRGOMA ANGLICUM** Leach [*Darwin*, 1854, II, p. 360]

Not common off coasts of Devon and Cornwall ; attached to the calyx of *Caryophyllia* off Plymouth (A.M.N. and T.S.) : common on *Caryophyllia smithi*, 15-35 fms. (R.A.T., S.P.)

Order ACROTHORACICA

Family Alciippidae

ALCIPPE LAMPAS Hancock [*Darwin*, 1854, II, p. 530]

Off Eddystone (C.S.B. *vide* Darwin, A.M.N. and T.S.)

Family Peltogastridae

SACCULINA CARCINI Thompson [*van Beneden*, 1861, p. 154 ; *Krüger*, 1927, p. 6]

Common, parasitic on *Carcinus* (S.P.) : Macropodia, Plymouth, 1903 (A.M.N., as *S. phalangi*) : on *Carcinus* at Mussel Bed, off Neille Pt., opposite Tavy ; at Rat Is., 30.8.28, 3.10.28 (E.P.)

Breeding : May-Sept. (W.G.)

PELTOGASTER PAGURI Rathke [*Krüger*, 1927, p. 6, 11]

On *Eupagurus bernhardus*, S.S.W. Penlee, 29.6.00 : on *E. cuanensis*, Mewstone Ledge, 25.6.02 (R.A.T.)

PELTOGASTER SOCIALIS Müller [*G. Smith*, 1906, p. 109]

On *Anapagurus laevis*, Mewstone, bearing N.E. $3\frac{1}{2}$ m., 25 fms., Agassiz trawl, 26.6.29, four specimens together on left side of abdomen, full of eggs (G.A.S.)

Sub-Class MALACOSTRACA

Order CUMACEA

Family Cumidae

IPHINOË TRISPINOSA (Goodsir) [*Sars*, 1900, p. 14]

Abundant 1892 (W.G.) : Whitsand B., May 1902, May 1903 (A.M.N.)

CUMOPSIS GOODSIRI (van Beneden) [1861, p. 76, as Bodothria]

Whitsand B. (A.M.N.)

Family Leuconidae

EUDORELLA TRUNCATULA (Bate) [*Sars*, 1900, p. 37]

Type specimen from Plymouth Sound (C.S.B.) : Plymouth, Cawsand B. 1889 ; April 1900 ; June 1903 (A.M.N.)

Family Diastylidae

DIASTYLIS RATHKEI (Kröyer) [*Sars*, 1900, p. 44]

Plymouth, from trawler's refuse (C.S.B. *fide* A.M.N. and T.S.)

DIASTYLIS CORNUTA (Boeck) [*Sars*, 1900, p. 45]

Outside Breakwater, small fish trawl, 15.6.08, male (W. DE M.)

DIASTYLIS LUCIFERA (Kröyer) [*Sars*, 1900, p. 49]

Plymouth (A.M.N.)

DIASTYLIS RUGOSA G. O. Sars [1900, p. 48]

Female, 5 m. S.W. Breakwater, coarse tow-net, 30 fms. to S., 17.7.06 (G.E.B.)

DIASTYLIS ROSTRATA (Goodsir) [*Sars*, 1900, p. 51]

Sept. 1889 ; 3 m. N.E. of Eddystone, Sept. 1900 (A.M.N., as *D. laevis*)

SALCOMBE (A.M.N.)

DIASTYLIS BRADYI Norman [1879, p. 59 ; *Walker*, 1888, p. 178]

Cawsand B., Apr. 1900 ; Whitsand B., May 1902 (A.M.N.)

SALCOMBE (A.M.N.)

Family Pseudocumidae

PSEUDOCUMA CERCARIA (van Beneden) [*Sars*, 1900, p. 74]

The most common of the cumaceans of Devon and Cornwall ; Cawsand B., Apr. 1900 ; Whitsand B., May 1902, and abundant in May 1903 (A.M.N.) : still very common in Cawsand B. and Whitsand B. (M.V.L.)

Family **Nannastacidae**

NANNASTACUS UNGUICULATUS Bate [1859, p. 273]

Whitsand B. (A.M.N.)

Order LEPTOSTRACA

NEBALIA BIPES (Fabricius) [G. O. Sars, 1896, p. 9]

Common under stones at low tide ; Drake's I. ; Mt. Edgcumbe ; Rum B., etc. (R.A.T., S.P.) : Asia Sh., not uncommon (S.P.) : Millbay Ch., occasionally ; Whitsand B. (A.J.S.) : often abundant on the bait in lobster pots (E.J.A.)

Breeding : Apr.-July (w.G.)

Order TANAIIDACEA

Family **Apseudidae**

APSEUDES LATREILLEI (Milne-Edwards) [Norman & Stebbing, 1884, p. 82]

Mouth of Yealm ; Plymouth (A.M.N.) : Drake's I., common among mud at roots of corallines (w.G.) : common under stones and in rock crevices ; Jennycliff B. ; Drake's I. (S.P.)

Breeding : females carrying ripe ova in Aug. (S.P.)

SALCOMBE (A.M.N.)

APSEUDES TALPA (Montagu) [Norman & Stebbing, 1884, p. 81]

Plymouth (G.S.B., w.G.) : not uncommon, between tide-marks ; Rum B. ; Reny Rks. ; Wembury B. (R.A.T.) : Millbay Ch. (R.A.T.)

Ova hatching : Feb. (R.A.T.)

SALCOMBE (G.M. and A.M.N.) : not uncommon in dredgings between Salcombe and Snape's Pt. (Allen & Todd, 1900, p. 203)

Family **Tanaidae**TANAIS CAVOLINI Milne-Edwards [Sars, 1899, p. 12, as *T. tomentosus*]

Common in crevices of the limestone of Plymouth Breakwater (R.A.T.) : from piles of Trinity Pier (Millbay Docks) amongst *Balanus*, May-June 1921, carrying eggs ; a few from concrete piles, a few from iron piles and girders ; in wooden piles, about ten times as many as in *Balanus* from concrete and iron (A.J.S.)

SALCOMBE (T.R.R.S. *fide* A.M.N. and T.S.)

LEPTOCHELIA DUBIA (Kröyer) [Sars, 1886, p. 317]

Plymouth Sound, 1903 (A.M.N.)

TANAIS LILLJEBORGI (Stebbing) [Norman & Scott, 1906, p. 34]

Jennycliff B., Whitsand B., dredged (A.M.N. and T.S.)

PARATANAIS BATEI G. O. Sars [1899, p. 16]

Jennycliff B., and other parts of the Sound, 1903 (A.M.N.) : Asia Sh., specimens were obtained from the surface of water in which stones had been placed for some hours, 19.3.20. All examined were females (J.O.-C.)

LEPTOGNATHIA BREVIREMIS (Lilljeborg) [Sars, 1899, p. 28]
Plymouth, 1889 (A.M.N.)

TANAOPSIS LATICAUDATA G. O. Sars [1899, p. 32]
Plymouth Sound, 1903 (A.M.N.)

Order ISOPODA

Sub-Order *Flabellifera*

Family **Anthuridae**

ANTHURA GRACILIS (Montagu) [Norman & Stebbing, 1884, p. 122]

Plymouth (A.M.N.): occasional specimens in dredgings from Sound ; Asia Sh. ; Queen's Gd. ; Millbay Ch. (R.A.T.): one specimen, 21 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912) : Millbay Ch., on the edge of the pit, dredge, 16.3.14, 23 specimens of various sizes (A.J.S.): occasional specimens, mud flat next above St. German's Bridge, Rat I., 30.8.28, 22.9.28 (E.P.)

SALCOMBE. One when dredging in the ' Bag ' (Allen & Todd, 1900, p. 203)

Family **Gnathiidae**

GNATHIA MAXILLARIS (Montagu) [Monod, 1926, p. 521]

Common under stones between tide-marks, and in dredgings from Sound (R.A.T., S.P.): Mewstone Gds. (R.A.T.)

Breeding: females with ova: Jan.; Feb. (R.A.T.): March (S.P.): May (R.A.T.): hatching out, Feb. (R.A.T.): 2 praniza larvae on upper side of a medium sized Plaice; when removed, swam very actively in the jar in which they were placed, 22 and 29.3.12 (A.W.T.)

SALCOMBE. Very common in dredgings from the Harbour and two from the ' Bag ' (Allen & Todd, 1900, p. 203)

PARAGNATHIA FORMICA (Hesse) [Monod, 1926, p. 308]

Common in Tamar as far up as hard opposite Boheterick; common in Lynher as far as junction of Lynher and Tiddy, Y.F.T. and hand; not collected below mouth of Lynher; June-Oct. 1928; breeding 17.8.28. Taken commonly from stomachs of young herring. Praniza stage in young-fish trawl at various depths. (E.P.)

Family **Aegidae**

AEGA ROSACEA Risso [Norman, 1904, p. 433]

Outer Mewstone Gds., 28 fms., otter trawl Jan. 1928 (G.A.S. identified by I.G. and W.M.T.): Mewstone N.E., 7 m., 29 fms., 5.9.28, otter trawl (G.A.S., identified by W.M.T.)

ROCINELA DANMONIENSIS Leach [Sars, 1899, p. 65]

Occasional specimens, 20-30 fms. (R.A.T., S.P.): at 5 positions 8-17 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912): Revelstoke Pt., N.E., 2 m., 19 fms., 5.12.29, dredge (G.A.S., identified by W.M.T.)

Breeding: Feb. (R.A.T.)

ROCINELA DUMERILI (Lucas) [*Norman*, 1904, p. 436]

Occasional specimens, 20-30 fms. (R.A.T., S.P.): nr. Eddystone 1889 (A.M.N.): Revelstoke Pt., N.E., 2 m., 19 fms., 5.12.29, dredge (G.A.S., identified by W.M.T.)

Hatching out: Aug. (R.A.T.)

Family **Anilocridae****NEROCILA NEAPOLITANA** Schiödte & Meinert [1881, p. 41]

5 or 6 m. S. of Mewstone (A.M.N.)

Family **Cirolanidae****CIROLANA CRANCHI** Leach [*Hansen*, 1890, p. 341]

Plymouth (G.S.B. *vide* A.M.N. and T.S.): tide-pools (T.V.H.)

CONILERA CYLINDRACEA (Montagu) [*Hansen*, 1890, p. 358]

Plymouth (A.M.N.): West Entrance; Mewstone Ledge; occasionally (R.A.T.): Mewstone Gds., not uncommon (R.A.T., S.P.): Stoke Pt. Gds. (S.P.): Rame-Eddystone Gds. (R.A.T., S.P.): 2 specimens, Drake's I. shore, just off gun slip, under stones, 21.5.09 (A.J.S.): one specimen, 17 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912)

Breeding: Apr. (R.A.T.): June-Aug. (S.P.)

A dead, but fresh specimen of *Scyllium canicula*, brought to the Laboratory in Sept. 1899, contained about 400 *C. cylindracea*, of which over 300 were living; having eaten through the wall of the stomach of the dogfish, they were feeding on the heart and liver (R.A.T.)

EURYDICE PULCHRA Leach [*Sars*, 1899, p. 73]

One specimen Whitsand B., 3.4.11 (K.H.B.)

EURYDICE SPINIGERA H. J. Hansen [1890, p. 367]

Whitsand B., 1903 (A.M.N.)

EURYDICE INERMIS Hansen [1890, p. 366]

Dredged near Eddystone, 1903 (A.M.N.)

Family **Limnoriidae****LIMNORIA LIGNORUM** (Rathke) [*Sars*, 1899, p. 76]

Common in drift wood, etc., in Sound (R.A.T., S.P.): R. Tamar, in log on mud flat $\frac{1}{2}$ m. above Cargreen, 17.8.28 (E.P.)

Family **Sphaeromidae****SPHAEROMA SERRATUM** (Fabricius) [*Bate & Westwood*, 1868, 2, p. 405]

Plymouth (A.M.N.): under stones, Drake's I.; Rum B., (R.A.T., S.P.): R. Tamar up to 1 mile above Weir Quay; R. Lynher up to Wivelscombe Lake, June-Oct., 1928 (E.P.)

SPHAEROMA RUGICAUDA Leach [*Bate & Westwood*, 1868, 2, p. 408]

Plymstock, nr. Plymouth (A.M.N.): R. Tamar, very common up to 1 to 3 m. above Calstock Bridge and down to $\frac{1}{2}$ m. below Pentillie Quay:

R. Lynher very common up to Tideford Mill and down to beach 100 yds. above Antony Creek, June-Oct., 1928, Y.F.T. and haul net (E.P.)

SPHAEROMA HOOKERI Leach [*Bate & Westwood*, 1868, 2, p. 410]
Chelson Meadow, Oct., 1913 (W.M.T.)

CYMODOCE TRUNCATA (Montagu) [*Bate & Westwood*, 1868, 2, p. 426, as *Cymodocea*]

Drake's I. (A.O.W.)

SALCOMBE. One in the Channel between Snape's Pt. and mouth of Harbour (Allen & Todd, 1900, p. 204)

NAESA BIDENTATA (Adams) [*Bate & Westwood*, 1868, 2, p. 431]

Plymouth (A.M.N.): not uncommon in empty barnacle shells, etc., between tide-marks in Sound (R.A.T.): Jennycliff B., abundant in rock crevices; Mt. Edgcumbe, under stones; the Breakwater; etc. (S.P.): Rum B., in rock crevices, March 1911 (K.H.B.). Female referred to as *Dynamene rubra* Leach in former list, Rum B., common Reny Rks., shore Bull Pt., Hamoaze.

Breeding: Feb. (R.A.T.)

CAMPECOPEA HIRSUTA (Montagu) [*Bate & Westwood*, 1868, 2, p. 434]

Plymouth (A.M.N.): Drake's I., Cawsand B., below Lab., in empty barnacle shells, March 1911; seems to prefer the angles to the sides or tops of the rocks; usually a male and female together in one barnacle; single males uncommon, single females more so (K.H.B.)

Sub-Order *Valvifera*

Family *Idoteidae*

IDOTEA BALTICA (Pallas) [*Sars*, 1899, p. 80]

Queen's Gd., on Antennularia; Cawsand B., on Zostera; Whitsand B. (S.P.): mouth of R. Yealm, S. side, 1915, all breeding, many (one large jar quite full) found and gathered by W. Searle and A. J. Smith from under large rocks amongst decaying drift wash, together with *I. emarginata* and *I. neglecta* (A.J.S.): S. bank mouth of R. Yealm, 7.3.16, not in same spot as in 1915 although drift weed was still there (A.J.S.): St. John's Lake, among *Zostera*; R. Lynher opposite Ince Castle, 6.6.28, 16.9.28, Y.F.T., hand; not at all common, especially above Hamoaze (E.P.)

SALCOMBE. In most hauls of the cheese-cloth trawls (Allen & Todd, 1900, p. 204)

Breeding: Mar., Apr.

IDOTEA PELAGICA Leach [*Sars*, 1899, p. 81]

From Eddystone (C.S.B.): single specimen between Breakwater Lt. and Queen's Gd. Buoy (J.T.C.)

Carrying embryos: Dec. (J.T.C.)

IDOTEA NEGLECTA G. O. Sars [1899, p. 84]

Plymouth, sometimes in the greatest profusion (A.M.N.): Drake's I., abundant under stones at L.W.; Jennycliff B., Mt. Edgcumbe, etc., occasionally (S.P.): shore, Wembury B., west, under stones and rocks,

1.4.15 ; mouth of R. Yealm (not quite half a jar) with *I. baltica* and *I. emarginata* as above, 17.3.15 (A.J.S.)

Breeding : Mar., Apr. (A.J.S.)

IDOTEA EMARGINATA (Fabr.) [Sars, 1899, p. 85]

Plymouth, at times very abundant (A.M.N.) : Jennycliff B., common (T.V.H., R.A.T.) : Whitsand B. (S.P.) : in sandy creek near rocks E. of Bovisand B. in pools uncovered at about $\frac{1}{2}$ ebb, so numerous as to make pools completely brown, several inches deep and above water level ; all sizes in sandy patches ; many were buried by their heads with tails in the air and under every stone ; also minute young, Oct. 1910 (H.J.B.W.) : mouth of R. Yealm (about 100 specimens) with *I. baltica* and *I. neglecta* as above, 17.3.15, 17.3.16 (A.J.S.)

Breeding : Mar. (A.J.S.)

IDOTEA LINEARIS (L.) [Bate & Westwood, 1868, 2, p. 388]

Plymouth (A.M.N.) : common among *Zostera*, Drake's I. ; Jennycliff B., Cawsand B., Whitsand B., Yealm Est. (S.P.)

ZENOBIANA PRISMATICA (Risso) [Bate & Westwood, 1868, 2, p. 391]

Cawsand B., inhabiting a *Zostera* stem (W.G.)

SYNISOMA LANCIFER (Leach) [Bate & Westwood, 1868, p. 396, as *Idotea appendiculata* ; Collinge, 1917, p. 751]

Wembury B., shore, one specimen, 2.4.12 ; Looe I., shore, one specimen, 29.3.14 (A.J.S., named by W.E.C.) : Wembury B. (back of Mewstone), shore, one specimen, 2.4.19 ; Looe I. shore, one specimen, 1.5.19 (A.J.S.)

Family **Arcturidae**

ASTACILLA LONGICORNIS (Sowerby) [Sars, 1899, p. 88]

Mouth of Yealm (A.M.N.) : Plymouth (C.S.B. *vide* A.M.N. and T.S.) : not uncommon clinging to spines of *Echinus esculentus*, Eddystone Gds. (R.A.T., S.P.) : Mewstone Ledge occasionally (R.A.T.) : 2 specimens 8 m. S.W. of Eddystone, 40 fms. (Crawshay, 1912)

Breeding : Apr. (R.A.T.)

SALCOMBE. On the *Zostera* of Ditch End and in dredgings from the Channel in Salcombe Harbour (Allen & Todd, 1900, p. 204)

ASTACILLA DESHAYSI (Lucas) [Stebbing, 1874, p. 8]

Inside Drake's I., 1889 (A.M.N.) : Cawsand B., D net, March 1911, 2 specimens amongst *Zostera* and other bits of weed (K.H.B.)

SALCOMBE (T.R.R.S.)

ARCTURELLA DAMNONIENSIS (Stebbing) [Norman, 1904, p. 446]

Female clinging to weed on buoy or float in Sound, weed hand picked by W. Searle, 6.2.11 (J.H.O.)

Sub-Order **ASELLOTA**

Family **Janiridae**

JANIRA MACULOSA Leach [Sars, 1899, p. 99]

Common in Millbay Pit and between tide-marks at Mt. Edgcombe and Drake's I. ; less common in dredgings from Queen's Gd., and Asia Sh. and on the Reny Rks. ; occasionally outside in 33 fms. (R.A.T.) : Rum B. shore ; Millbay Ch., dredge, 21.7.09 ; those from shore with larvae but no eggs ; Rum B. shore, 20.7.09, carrying eggs, collected by W. Searle ; on *Halichondria panicea* from Promenade Pier, 12.1.10, about 100 very large specimens, few breeding (A.J.S.)

Females carrying ova : Mar.-Apr. (R.A.T.)

SALCOMBE. A few in the dredge in the channel of the Harbour (Allen & Todd, 1900, p. 204)

JAERA MARINA (Fabricius) [*Sars*, 1899, p. 104]

Rocks under Hoe ; Queen's Gd. ; the Breakwater ; not uncommon (R.A.T.) : Hollow Rock B., common under stones at low water (S.P.) : Reny Rks., common (R.A.T.) : Rum B. shore, 21.1.09, carrying young (no eggs) ; Rum B. $\frac{1}{2}$ -tide to almost high water, 23.1.09, with eggs which were very green (A.J.S.) : Bull Pt., Hamoaze, very common ; shore above Ince Castle, rare, 1.8.28, 19.7.28, hand (E.P.)

Breeding : Feb. (R.A.T.)

SALCOMBE. Two in the cheese-cloth trawl on the Zostera bank of Ditch End (Allen & Todd, 1900, p. 204)

JAERA NORDMANNI (Rathke) [*Norman & Scott*, 1906, p. 48]

Plymouth (C.S.B.)

Family **Munnidae**

MUNNA KRÖYERI Goodsir [*Sars*, 1899, p. 109]

Millbay Ch. ; Asia Sh. ; Queen's Gd. ; Yealm R. ; not uncommon (R.A.T.) : Asia Sh., dredge, 6.8.12, about 2 dozen specimens (R.A.T.)

SALCOMBE. Not uncommon in dredge material between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 204)

MUNNA LIMICOLA G. O. Sars [1899, p. 108]

Nr. Duke Buoy Plymouth, 1889 and 1903 (A.M.N.)

Sub-Order *Oniscoidea*

Family **Ligiidae**

LIGIA OCEANICA (L.) [*Sars*, 1899, p. 156]

Common in rock crevices, etc., above high-water mark in Sound (R.A.T., S.P.) : abundant on quay walls in Cattewater (S.P.) : Breakwater (A.O.W., S.P.) : in rock crevices, Drake's I., above high-water mark, breeding Mar., Apr. (C.G.H.) : on rocky shore near Ince Castle, R. Lynher ; nr. wall, L. Bank above Saltash Bridge, hand, 1.8.28, 19.9.28 (E.P.)

Family **Armadillididae**

ARMADILLIDIUM VULGARE (Latreille) [*Sars*, 1899, p. 189]

In rock crevices above high-water mark with *Ligia oceanica*, Drake's I., Apr. (C.G.H.)

Sub-Order *Epicarida*Family **Bopyridae**

PSEUDIONE CALLIANASSAE Kossman [*Bonnier*, 1900, p. 293]

From *Callianassa subterranea*, outer Mewstone Gds., 20 fms., small mesh dredge, 13.2.29 (G.A.S., identified by W.M.T.)

PSEUDIONE INSIGNIS Giard & Bonnier [*Bonnier*, 1900, p. 301]

From *Munida bamffica*, Mewstone Grounds, 28 fms., Agassiz trawl, 11.12.28 (G.A.S., confirmed by W.M.T.)

PLEUROCRYPTA CLUTHAE T. Scott [1902, p. 1, pl. 1, fig. 5]

In branchial chamber of *Pandalina brevivirostris*, Mewstone Gds., 26 fms., Agassiz trawl, 28.9.28, fairly common (G.A.S.)

PHRYXUS PHILONIKA Giard & Bonnier [*Bonnier*, 1900, p. 381] from *Processa canaliculata*

Mewstone Gds., 25 fms., Petersen Grab, 3.5.29 (G.A.S., determined by W.M.T.)

BOPYRUS SQUILLARUM Latreille [*Sars*, 1899, p. 197]

Not uncommon on *Leander serratus*, Cawsand B.; etc. (R.A.T.): Cawsand; under Drake's I.; generally anywhere in Sound, on *Leander*, 2.5.27, these have recently (last two months or so from this date) been very common, whereas during the last five or six years they have been very scarce (A.J.S.)

GYGE BRANCHIALIS Cornalia & Panceri [*Bonnier*, 1900, p. 353]

SALCOMBE. In *Upogebia deltura*, 23/24.3.22 (T.T.B.). *Microniscus*, larval forms which probably belong to *Gyge* are common on various copepods in the plankton, all seasons (M.V.L.)

IONE THORACICA (Montagu) [*Bate & Westwood*, 1868, p. 255]

Taken over 100 years ago by Montagu on *Callianassa subterranea*, at Kingsbridge.

Family **Cryptoniscidae**

HEMIONISCUS BALANI (Spence Bate) [*Sars*, 1899, p. 236]

In *Balanus balanoides*, St. John's Lake, Bull Pt., Hamoaze, hand, 19.7.28, 16.9.28 (E.P.)

LIRIOPSIS PYGMAEA (Rathke) [*Sars*, 1899, p. 242]

Parasitic on *Peltogaster paguri*; the latter being attached to the abdomen of young specimens of *Pagurus cuanensis* dredged off Plymouth (A.M.N.)

Family **Entoniscidae**

PORTUNION MAENADIS Giard [*Stebbing*, 1874, p. 42]

On a male *Carcinus* from Plymouth, only one out of 250 examined, shrimp trawl, mouth of Cattewater 17.12.23 (M.G.L.P.)

Order AMPHIPODA

Sub-Order Gammaridea

Family Lysianassidae

- ACIDOSTOMA OBESUM (Bate) [*Chevreux and Fage*, 1925, p. 32]
 Plymouth (A.M.N.) : SALCOMBE (T.R.R.S.)
- PERRIERELLA AUDOUINIANA (Bate) [*Chevreux & Fage*, 1925, p. 34]
 Plymouth, nr. Duke Rk. (A.M.N.)
- NANNONYX GOËSI (Boeck) [*Chevreux & Fage*, 1925, p. 38]
 Plymouth, 1889, Drake's Is. L.W. 1903 (A.M.N.)
- LYSIANASSA PLUMOSA Boeck [*Chevreux & Fage*, 1925, p. 43]
 Millbay Ch. (T.V.H.) : Plymouth Sd. (C.S.B.) : SALCOMBE (A.M.N.)
- LYSIANASSA CERATINA A. O. Walker [*Chevreux & Fage*, 1925, p. 42]
 Plymouth (A.M.N.) : Sound in mud (E.F.) : Asia Sh., March 1911 (K.H.B.)
 SALCOMBE (A.M.N.)
- SOCARNES ERYTHROPHthalmus D. Robertson [*Chevreux & Fage*, 1925, p. 50]
 Plymouth, 1903 (A.M.N.)
- HIPPOMEDON DENTICULATUS (Bate) [*Chevreux & Fage*, 1925, p. 53]
 Bigbury B., clean sand, Whitsand B., sand (E.F.)
- SCOPELOCHEIRUS HOPEI A. Costa [*Chevreux & Fage*, 1925, p. 55]
 Plymouth (A.M.N.) : 6 m. S. of Mewstone, March, 1911, several on the back and between the legs of *Maia squinado*, but chiefly in the empty tests of *Echinocardium cordatum* (K.H.B.)
- ORCHOMENE HUMILIS (A. Costa) [*Chevreux & Fage*, 1925, p. 59]
 Sound (C.S.B.) : Plymouth (A.M.N.) : Millbay Ch. : Queen's Gd. (T.V.H.) : E. of Mallard Buoy (E.F.)
- TRYPHOSELLA SANSI (Bonnier) [*Stebbing*, 1906, p. 70]
 Mouth of Yealm 1889 (A.M.N.) : Queen's Gd. (T.V.H.)
- TRYPHOSELLA HÖRINGI (Boeck) [*Stebbing*, 1906, p. 71]
 Mouth of the Yealm 1889 (A.M.N.)
- TMETONYX CICADA (Fabricius) [*Chevreux & Fage*, 1925, p. 69]
 Sound (C.S.B.)
- ORCHOMENELLA NANA (Kröyer) [*Chevreux & Fage*, 1925, p. 71]
 Plymouth (A.M.N., T.V.H.) : dredged from Millbay from a decaying *Cancer pagurus*, 3.9.29 (S.M.N.)

Family Ampeliscidae

- AMPELISCA BREVICORNIS (A. Costa) [*Chevreux & Fage*, 1925, p. 77]
 Plymouth Sound, dredged (C.S.B.) : off Eddystone, fine sand, Erme Hd., Borough Is., sand (E.F.)

SALCOMBE. Millbay, sand between tide-marks, lying in U-shaped burrows lined with mucus, 11.4.29 (J.G.H., J.H.O.)

AMPELISCA SPINIPES Boeck [*Chevreaux & Fage*, 1925, p. 81]

Off Mewstone (A.M.N.): Cawsand B., occasionally; Mewstone Gds., not uncommon on fine and medium gravel (R.A.T.): off Mewstone, sand and shell (E.F., G.A.S.): one specimen S.W. of Eddystone, 40 fms. (L.R.C.): very young Rays feed largely on this and the following species (G.A.S.)

Females bearing ova, Mar. (R.A.T.)

SALCOMBE (A.M.N.)

AMPELISCA TENUICORNIS Lilljeborg [*Chevreaux & Fage*, 1925, p. 83]

Plymouth (A.M.N.): Duke Buoy (A.O.W.): nr. Mewstone (A.M.N.): off Eddystone, fine sand (E.F.): common on Mewstone Gds., fine, silty sand (G.A.S.)

SALCOMBE (A.M.N.)

AMPELISCA TYPICA (Bate) [*Chevreaux & Fage*, 1925, p. 84]

Plymouth (A.M.N.): off Eddystone, shelly gravel (E.F.)

SALCOMBE (A.M.N.)

Family **Haustoriidae**

BATHYPOREIA GUILLIAMSONIANA (Bate) [*Chevreaux & Fage*, 1925, p. 92]

Bigbury Bay, clean sand (E.F.): Whitsand B. (E.F., J.R.B.)

BATHYPOREIA PELAGICA Bate [*Chevreaux & Fage*, 1925, p. 93]

Plymouth (A.M.N.): Whitsand B. (T.V.H.): Bigbury B., clean sand; Rame-Eddystone; Whitsand B. (E.F.)

SALCOMBE. One in the cheese-cloth trawl on the bar (Allen & Todd, 1900, p. 202)

HAUSTORIUS ARENARIUS (Slabber) [*Chevreaux & Fage*, 1925, p. 95]

Whitsand B. (W.B.)

UROTHOË MARINA (Bate) [*Chevreaux & Fage*, 1925, p. 97]

Plymouth (A.M.N.): shelly gravel, Erme Head (E.F.): Mewstone Gds. (G.A.S.)

Family **Phoxocephalidae**

PHOXOCEPHALUS HOLBÖLLI (Kröyer) [*Stebbing*, 1906, p. 134]

Sound (C.S.B.): Sound, 1889 (A.M.N.)

METAPHOXUS PECTINATUS (A. O. Walker) [*Chevreaux & Fage*, 1925, p. 105]

Sound (C.S.B.)

METAPHOXUS FULTONI (T. Scott) [*Chevreaux & Fage*, 1925, p. 106]

Sound, 1889 (A.M.N.)

HARPINIA ANTENNARIA Meinert [*Chevreaux & Fage*, 1925, p. 108, as *H. della-vallei*]

Sound (C.S.B.): Plymouth: SALCOMBE (A.M.N., as *H. neglecta*)

Family **Amphiloichidae**

AMPHILOCHUS NEAPOLITANUS Della Valle [*Chevreaux & Fage*, 1925, p. 112]

SALCOMBE (A.M.N.)

AMPHILOCHUS MANUDENS Bate [*Chevreaux & Fage*, 1925, p. 114]

Inside Drake's I. (A.M.N., A.O.W.)

AMPHILOCHOIDES ODONTONYX (Boeck) [*Chevreaux & Fage*, 1925, p. 116]

Sound, in 8 fms., 1889 (A.M.N.)

Family **Leucothoidae**

LEUCOTHOE SPINICARPA (Abildgaard) [*Chevreaux & Fage*, 1925, p. 122]

Plymouth (A.M.N.): Plymouth (C.S.B.): Millbay Ch., moderately common (T.V.H., R.A.T.): Cattewater: Queen's Gd.; Duke Rk. (T.V.H.): Yealm R., not uncommon (R.A.T.): S.W. of Eddystone, from one to four specimens at 6 different positions, 40-45 fms. (L.R.C.): Sound, shelly gravel (E.F.)

SALCOMBE. Salcombe (A.M.N.): one in the dredge, W. of Salstone (Allen & Todd, 1900)

Family **Stenothoidae**

STENOTHOE MONOCULOIDES (Montagu) [*Chevreaux & Fage*, 1925, p. 133]

Plymouth (A.M.N., C.S.B.): SALCOMBE (G.M.)

STENOTHOE MARINA (Bate) [*Chevreaux & Fage*, 1925, p. 136]

Among trawl refuse from near Eddystone (C.S.B.): Plymouth (A.M.N.): Duke Buoy (A.O.W.)

STENOTHOE SETOSA A. M. Norman [*Stebbing*, 1906, p. 725]

Type specimen, Plymouth, Aug. 1889 (A.M.N.)

Family **Cressidae**

CRESSA DUBIA (Bate) [*Chevreaux & Fage*, 1925, p. 141]

Type specimen, trawl refuse from nr. Eddystone (C.S.B.)

Family **Phliasidae**

PEREIONOTUS TESTUDO (Montagu) [*Chevreaux & Fage*, 1925, p. 142]

Salcombe, 1889 and 1903 (A.M.N.)

Family **Colomastixidae**

COLOMASTIX PUSILLA Grube [*Chevreaux & Fage*, 1925, p. 144]

Plymouth (A.M.N.)

Family **Acanthonozomidae**

PANOPLOEA MINUTA (G. O. Sars) [*Chevreaux & Fage*, 1925, p. 148]

Plymouth (A.M.N.): Queen's Gd. (T.V.H., R.A.T.): Yealm R. (R.A.T.)

IPHIMEDIA OBESA Rathke [*Chevreaux & Fage*, 1925, p. 150]

Dredged on the N.W. of Drake's Is. (C.S.B.) : Plymouth Hr. (T.V.H.) :
one specimen S.W. of Eddystone, 40 fms. (L.R.C.) : SALCOMBE (T.R.R.S.)

Family **Lilljeborgiidae**

LILLJEBORGIA BREVICORNIS Lilljeborg [*Chevreaux & Fage*, 1925, p. 155]

E. side of Drake's Is. (C.S.B.)

Family **Oedicerosidae**

PERIOCULODES LONGIMANUS (Bate and Westw.) [*Chevreaux & Fage*, 1925, p. 162]

Plymouth (A.M.N.) : Cawsand B., 31.3.11, one specimen (K.H.B.) :
3½ m. due S. Breakwater Light, 25 fms. Grab. 22.8.28 (G.A.S.)

PONTOCRATES ARENARIUS (Bate) [*Chevreaux & Fage*, 1925, p. 166]

Whitsand B., 1889 and 1903 (A.M.N.) : Sound ; off Eddystone, fine, shelly
sand (E.F.)

PONTOCRATES NORVEGICUS Boeck [*Chevreaux & Fage*, 1925, p. 164]

Whitsand B. (A.M.N.)

PONTOCRATES ALTAMARINUS (Bate and Westw.) [*Stebbing*, 1906, p. 240]

SALCOMBE. At the " Bar " (R.A.T.) (Allen & Todd, 1900)

SYNCHELIDIUM HAPLOCHELES Grube [*Chevreaux & Fage*, 1925, p. 168]

Plymouth (A.M.N.) : Cawsand B., 31.3.11, one specimen (K.H.B.)

MONOCULODES CARINATUS (Bate) [*Chevreaux & Fage*, 1925, p. 169]

Nr. Duke Rk. 1889 (A.M.N.) : Erme Hd., shelly gravel (E.F.)

WESTWOODILLA CAECULA (Bate) [*Chevreaux & Fage*, 1925, p. 173]

Among trawl refuse near Eddystone (C.S.B.) : dredged off Eddystone
1903 (A.M.N.)

Family **Calliopiidae**

APHERUSA JURINEI (H. Milne-Edwards) [*Chevreaux & Fage*, 1925, p. 182]

Plymouth (A.M.N.) : Pools below Laboratory in *Cladophora pellucida*,
3 specimens ; Wembury B., 2 specimens, March 1911, female with ova
(K.H.B.) : 2½ m. S. of Mewstone, 24 fms., grab, 2.8.28 (G.A.S.)

APHERUSA CIRRUS (Bate) [*Chevreaux & Fage*, 1925, p. 179]

Plymouth (A.M.N.) : Wembury B. reefs in pools, March 1911, 2 speci-
mens (K.H.B.)

SALCOMBE (A.M.N.)

APHERUSA BISPINOSA (Bate) [*Chevreaux & Fage*, 1925, p. 177]

Plymouth (A.M.N.) : inside Drake's Is. (A.M.N. and A.O.W.) : Yealm
Estuary, very rare (R.A.T.) : Jan., Oct. 1916, outside Sd. (M.V.L.)

APHERUSA OVALIPES Norman & Scott [*Chevreaux & Fage*, 1925, p. 178]

Plymouth, not uncommon (A.M.N.), In Plankton, summer 1925 (F.S.R.)

APHERUSA CLEVEI G. O. Sars [*Chevreur & Fage*, 1925, p. 179]

West Chan. surface, 10.8.03 (W.B.): outside Sound, June-Aug. 1916 (M.V.L.): July 1918 (G.E.W.): 1919, July-Sept.; 1920, May-Aug., Dec.; 1921, July, very common, Nov. (also from Station E. 1 in Aug.); 1922, June-Aug.; 1925, March-Aug. (M.V.L.)

Family **Paramphithoidae**

EPIMERIA CORNIGERA (Fabricius) [*Chevreur & Fage*, 1925, p. 191]

Five specimens, 4 in one position, one each in two others, S.W. of Eddystone, 43-47 fms. (Crawshaw, 1912)

Family **Atylidae**

NOTOTROPIS SWAMMERDAMI (H. Milne-Edwards) [*Chevreur & Fage*, 1925, p. 195]

Common Plymouth (A.M.N.): Cawsand B., not uncommon (R.A.T.): Rum B. (T.V.H.): Whitsand B. (R.A.T.)

Females carrying ova: Jan., May (R.A.T.): Dec. (T.V.H.)

NOTOTROPIS VEDLOMENSIS (Bate) [*Stebbing*, 1906, p. 331]

Sound; off Eddystone; Rame-Eddystone; Whitsand B., shelly gravel (E.F.): Mewstone and Rame-Eddystone Gds., 1929 (G.A.S.)

NOTOTROPIS FALCATUS (Metzger) [*Chevreur & Fage*, 1925, p. 196]

Whitsand B. (A.M.N.): Mewstone and Rame-Eddystone Gds., silty sand and shell (G.A.S.)

SALCOMBE. At the Bar (R.A.T.)

Family **Melphidippidae**

MELPHIDIPPELLA MACRA (Norman) [*Chevreur & Fage*, 1925, p. 198]

Rame-Eddystone, silty sand with shell fragments (E.F.)

Family **Gammaridae**

CHEIROCRATUS INTERMEDIUS G. O. Sars [*Chevreur & Fage*, 1925, p. 224]

A single male, Plymouth 1889 (A.M.N.)

CHEIROCRATUS SUNDEVALLI (Rathke) [*Chevreur & Fage*, 1925, p. 223]

Plymouth (A.M.N.): Mewstone Gds. in very fine, silty sand (G.A.S.)

SALCOMBE (A.M.N.)

MEGALUROPUS AGILIS Hoek [*Chevreur & Fage*, 1925, p. 226]

Whitsand B.; Plymouth (A.M.N.): Cawsand B., female with ova, two specimens, 31.3.11 (K.H.B.)

PHERUSA FUCICOLA Leach [*Chevreur & Fage*, 1925, p. 247]

Mouth of Yealm (A.M.N.): Plymouth (A.O.W.)

MELITA PALMATA (Montagu) [*Chevreur & Fage*, 1925, p. 230]

Plymouth (A.M.N.): occasionally between tide-marks in Sound (R.A.T.): R. Tamar up to landing at Weir Quay, usually on hard ground, June-Oct. 1928 (E.F.): Mewstone and Rame-Eddystone Gds. (G.A.S.)

SALCOMBE (A.M.N.)

MELITA OBTUSATA Montagu [*Chevreaux & Fage*, 1925, p. 232]

Plymouth (C.S.B., A.M.N.) : not uncommon Millbay Ch. and Pit : Queen's Gd. : Cawsand B. (R.A.T.) : Duke Rk. (T.V.H.)

Females with ova : Jan., Apr., Dec. (R.A.T.)

SALCOMBE (G.M., A.M.N.)

MELITA GLADIOSA Bate [*Chevreaux & Fage*, 1925, p. 233]

Plymouth (C.S.B.) : mouth of Yealm : Plymouth (A.M.N.) : Queen's Gd., occasionally (R.A.T.)

SALCOMBE (A.M.N.) : one or two dredged in channel in Salcombe Harbour (Allen & Todd, 1900)

CERADOCUS SEMISERRATUS (Bate) [*Chevreaux & Fage*, 1925, p. 236]

Nr. Mallard Buoy, Sound (C.S.B.) : mouth of Yealm (A.M.N.) : nr. Eddystone, 30 fms. (A.O.W.) : Whitsand B. (E.F.)

SALCOMBE (A.M.N.)

MAERA OTHONIS (M. Edwards) [*Chevreaux & Fage*, 1925, p. 237]

Mouth of R. Yealm (A.M.N.) : Plymouth Sound (C.S.B.) : Millbay Ch., occasionally (R.A.T.) : Duke Rk. ; Yealm (T.V.H.) : off Eddystone (E.F.) : not uncommon Mewstone and inner Eddystone Gds., sand and gravel (G.A.S.)

SALCOMBE (T.R.R.S.)

MAERA GROSSIMANA (Montagu) [*Chevreaux & Fage*, 1925, p. 239]

Mouth of R. Yealm, Plymouth (A.M.N.) : occasionally taken between tide-marks (R.A.T.) : Bovisand Cove (J.T.C.)

SALCOMBE (A.M.N.)

ELASMOPUS RAPAX A. Costa [*Chevreaux & Fage*, 1925, p. 244]

Off Plymouth (C.S.B.)

GAMMARUS MARINUS Leach [*Chevreaux & Fage*, 1925, p. 250]

Plymouth (C.S.B., A.M.N.) : common on the shore (R.A.T., S.P.) : Rum B. (R.A.T.) : Drake's I. ; Breakwater ; Mt. Edgcumbe ; Wembury B. (T.V.H.) : Reny Rks. (R.A.T.) : Queen's Gd., occasionally (R.A.T., T.V.H., S.P.) : R. Lynher to junction of Lynher and Tiddy : R. Tamar up to North Hove, usually associated with Fucus, June-Oct. 1928 (E.P.)

Females with ova, Feb. (R.A.T.) : Mar. (T.V.H.)

GAMMARUS LOCUSTA (L.) [*Chevreaux & Fage*, 1925, p. 257]

Common everywhere between tide-marks (A.M.N.) : very common under stones and among weeds, etc., between tide-marks to 5-6 fms. (R.A.T.) : West Ch. 30.11.06, one specimen (W.B.) : common in Tamar up to Morwell Rks. ; common in Lynher up to Tredinnick, June-Oct. 1928 (E.P.)

SALCOMBE. In nearly all hauls of dredge and cheese-cloth trawl ; commonest on the Zostera south of Pilworthy Pt. (Allen & Todd, 1900)

Females with ova, Jan. (R.A.T.) : Dec. (R.A.T., T.V.H.)

GAMMARUS CAMPYLOPS Leach [*Stebbing*, 1906, p. 476]

Queen's Gd. : Duke Rk. (T.V.H.)

SALCOMBE. Common on Zostera bank, east side of Salcombe Harbour (R.A.T.) : between Ferry House and Millbay Sands (Allen & Todd, 1900)

GAMMARUS CHEVREUXI Sexton [*Chevreur & Fage*, 1925, p. 255]

Chelson Meadow, very common in the brackish water ditches (E.W.S.)

GAMMARUS DUEBENI Lilljeborg [*Chevreur & Fage*, 1925, p. 257]

R. Tamar, opposite Cotehele Woods ; Calstock to Weir Head, R. Tiddy, St. German's, Shevioc Wood, upwards ; Saltmarsh, St. German's, 1928 (E.P.) : Chelson Meadow, brackish water ditches (E.W.S.)

Family Dexaminidae

TRITAETA GIBBOSA (Bate) [*Chevreur & Fage*, 1925, p. 266]

Barn Pool, Plymouth, 1889 (A.M.N.) : Asia Sh., in Ficulina, Mar. 1911, common (K.H.B.)

DEXAMINE SPINOSA (Montagu) [*Chevreur & Fage*, 1925, p. 264]

Mouth of Yealm ; Plymouth (A.M.N.) : inside Drake's I. (A.M.N. and A.O.W.) : Millbay ; Cawsand B. ; Knap Buoy ; Whitsand B. (T.V.H.) : Yealm Estuary, occasionally (R.A.T.)

Breeding : July (R.A.T.)

SALCOMBE (A.M.N.) : a few in the cheese-cloth trawl on the Zostera off Ditch End, three on Zostera under Marine Hotel, three in dredge between Salstone and the mouth of the Harbour (Allen & Todd, 1900)

GUERNEA COALITA (Norman) [*Chevreur & Fage*, 1925, p. 267]

Plymouth, 1889 (A.M.N.)

Family Talitridae

TALITRUS SALTATOR (Montagu) [*Chevreur & Fage*, 1925, p. 271]

Abundant on all sandy shores, under weeds and stones, at the H.W. mark of spring tides (S.P.)

ORCHESTIA MEDITERRANEA A. Costa [*Chevreur & Fage*, 1925, p. 273]

Drake's I. ; Knap Buoy (T.V.H.) : Millbrook Lake ; shore below South-down brickworks above H.W. mark, very abundant, 21.6.27 (E.P.)

ORCHESTIA GAMMARELLA (Pallas) [*Chevreur & Fage*, 1925, p. 274]

Abundant everywhere at H.W., under weed and stones, and in rock crevices (S.P.) : Shore (N. side) R. Yealm (nr. cable), 2.3.15 (A.J.S.) : R. Tamar as far as North Hove : R. Lynher up to shore at Ince Castle, June-Oct., 1928 (E.P.)

TALORCHESTIA DESHAYESEI (Audouin) [*Chevreur & Fage*, 1925, p. 278]

Mount Batten, Plymouth (C.S.B.)

HYALE NILSSONI (Rathke) [*Chevreur & Fage*, 1925, p. 282]

Sound (C.S.B.) : Mewstone (A.M.N.) : Whitsand B., amongst

Enteromorpha in rock pools, a few from one small pool, seems to be common, 26.3.II (K.H.B.)

HYALE PONTICA (Rathke) [*Chevreaux & Fage*, 1925, p. 283]

Breakwater (C.S.B.)

Family Aoridae

AORA TYPICA Kröyer [*Chevreaux & Fage*, 1925, p. 293]

Mouth of Yealm : Sound (A.M.N.) : Sound, occasionally (R.A.T.) : Cawsand Bay (E.W.S.)

MICRODEUTOPUS ANOMALUS (Rathke) [*Chevreaux & Fage*, 1925, p. 298]

Mouth of Yealm (A.M.N.)

MICRODEUTOPUS DAMNONIENSIS (Bate) [*Chevreaux & Fage*, 1925, p. 297]

Plymouth in a sponge (H.S., per A.M.N.)

MICRODEUTOPUS GRYLLOTALPA A. Costa [*Chevreaux & Fage*, 1925, p. 299]

On *Maia squinado*, Plymouth, 1889 (A.M.N.)

MICRODEUTOPUS CHELIFER (Bate) [*Chevreaux & Fage*, 1925, p. 295]

Salcombe (W.W. *vide* C.S.B.)

LEMBOS WEBSTERI (Bate) [*Chevreaux & Fage*, 1925, p. 303]

Plymouth (A.M.N.) : SALCOMBE (T.R.R.S.)

COREMAPUS VERSICULATUS Norman [*Chevreaux & Fage*, 1925, p. 301]

Plymouth (C.S.B.) : Plymouth (A.M.N.)

SALCOMBE (T.R.R.S., A.M.N.)

Family Photidae

MICROPROTOPUS MACULATUS Norman [*Chevreaux & Fage*, 1925, p. 308]

Plymouth (A.M.N.)

PHOTIS LONGICAUDATA (Bate and Westw.) [*Chevreaux & Fage*, 1925, p. 310]

Plymouth. SALCOMBE (A.M.N.)

EURYSTHEUS MACULATUS (Johnston) [*Chevreaux & Fage*, 1925, p. 314]

Plymouth, very common (A.M.N.) : Plymouth (A.O.W.) : 3 specimens S.W. of Eddystone, 47 fms. (Crawshay, 1912) : S. of Mewstone and Rame-Eddystone Gds., March-April 1911, on *Maia squinado* (K.H.B.) : Down-derry-Looe, muddy shingle (E.F.)

LEPTOCHEIRUS HIRSUTIMANUS (Bate) [*Chevreaux & Fage*, 1925, p. 321]

Sound, coarse shelly gravel (E.F.)

Family Isaeidae

ISAEA MONTAGUI H. Milne-Edwards [*Chevreaux & Fage*, 1925, p. 329]

On *Maia squinado*, Plymouth (A.M.N.) : S. of Mewstone ; Rame-Eddystone, on *Maia squinado*, 2-3 on each, March, 1911 (K.H.B.) : 23.9.30 ripe female on *Maia squinado* (J.S.C.)

Family **Amphithoidae**

AMPHITHOË RUBRICATA (Montagu) [*Chevreaux & Fage*, 1925, p. 334]

Common between tide-marks (A.M.N.): not uncommon in dredgings from Sound, and occasionally between tide-marks (R.A.T.): Yealm R. (T.V.H.): Plymouth Harbour (A.O.W.)

SALCOMBE. In most hauls of the dredge, excepting in the 'Bag' (Allen & Todd, 1900)

Female carrying young: Feb. (R.A.T.)

PLEONEXES GAMMAROIDES Bate [*Chevreaux & Fage*, 1925, p. 335]

Mewstone, tide-marks (A.M.N.): Drake's I.; mooring buoy off slips, 8.3.II, common (K.H.B.)

Breeding: female with ova and embryos, March (K.H.B.)

SALCOMBE (T.R.R.S.)

SUNAMPHITHOË PELAGICA (H. Milne-Edwards) [*Chevreaux & Fage*, 1925, p. 340]

Plymouth (A.M.N.) SALCOMBE (T.R.R.S., A.M.N.)

Family **Jassidae**

JASSA FALCATA (Montagu) [*Chevreaux & Fage*, 1925, p. 344]

Plymouth (A.M.N.): abundant on the buoys, hulks and piles in Sound, Millbay Docks and Cattewater (R.A.T.): in weed on buoys up to white and black buoys off mouth of R. Tavy; Lynher up to beach 100 yds. above Antony Creek, 19.7.28, 1.8.28 (E.P.)

Breeding: a female with ova, Nov. (T.V.H.)

JASSA PUSILLA (G. O. Sars) [*Chevreaux & Fage*, 1925, p. 346]

Rame-Eddystone, in sponges on back and legs of *Inachus dorsettensis*, common, March and April, 1911 (K.H.B.): on a sponge containing *Inachus dorsettensis*, 4 females with eggs and eleven specimens at another position, S.W. Eddystone, 40-42 fms. (Crawshay, 1912)

JASSA DENTEX (Czerniavski) [*Chevreaux & Fage*, 1925, p. 348]

No. 15 buoy off Bull Pt., Hamoaze, in weed, fairly common, 19.7.28 (E.P.)

MICROJASSA CUMBRENSIS (Stebbing & Robertson) [*Chevreaux & Fage*, 1925, p. 350]

Plymouth, abundant (A.M.N.)

PARAJASSA PELAGICA (Leach) [*Chevreaux & Fage*, 1925, p. 349]

From trawlers off Plymouth (C.S.B.)

ISCHYROCERUS ANGUIPES Kröyer [*Stebbing*, 1906, p. 658]

Duke Rk., 5 fms. (T.V.H.)

Family **Corophiidae**

ERICHTHONIUS BRASILIENSIS (Dana) [*Chevreaux & Fage*, 1925, p. 353]

Plymouth, abundant (A.M.N.): Millbay Ch.; Queen's Gd., common

(R.A.T., S.P.) : Yealm R. (R.A.T.) : Eddystone Gds. (E.J.A.) : 3 specimens
S.W. of Eddystone, 47 fms. (Crawshay, 1912)

SALCOMBE (A.M.N.)

ERICHTHONIUS DIFFORMIS H. Milne-Edwards [*Chevreux & Fage*, 1925, p. 354]
Plymouth (A.M.N.)

UNCIOLA CRENATIPALMA (Bate) [*Chevreux & Fage*, 1925, p. 358]

Off Plymouth, plentiful, among shells and stones on a muddy bottom,
20 fms. (W.G., A.M.N.)

SIPHONOCETES COLLETTI Boeck [*Chevreux & Fage*, 1925, p. 359]

Whitsand B. (A.M.N.) : off Eddystone, muddy shingle (E.F.)

SALCOMBE (A.M.N.)

SIPHONOCETES DELLAVALLEI Stebbing [*Chevreux & Fage*, 1925, p. 361]

Bigbury B. ; Whitsand B., clean sand (E.F.)

COROPHIUM VOLUTATOR (Pallas) [*Chevreux & Fage*, 1925, p. 364]

Plymouth (W.G.) : R. Tamar, common from North Hove upwards ;
R. Lynher, common from deep place 100 yards above Antony Creek up to
Tideford, June-Oct. 1928 ; replaces *Nereis diversicolor* in upper tidal
region becoming extremely abundant (E.P.) : Chelson Meadow forms
tubular galleries in the mud of brackish ditches (E.W.S.)

SALCOMBE (Allen & Todd, 1900)

COROPHIUM CRASSICORNE Bruzelius [*Chevreux & Fage*, 1925, p. 367]

Millbay Ch. and Pit, very common ; Queen's Gd., not uncommon
(R.A.T., T.V.H.) : West Ch. ; Yealm R. (T.V.H.) : R. Tamar up to $\frac{1}{2}$ m.
above Cargreen ; very common in mussel bed off Neille Pt., June-Oct.
1928 (E.P.)

Breeding : females with ova, Nov. (T.V.H.)

COROPHIUM BONELLI (H. Milne-Edwards) [*Chevreux & Fage*, 1925, p. 369]

Plymouth, abundant (A.M.N.) : Millbay ; Queen's Gds. ; Duke Rk.
(T.V.H.)

Family Cheluridae

CHELURA TEREBRANS Philippi [*Chevreux & Fage*, 1925, p. 371]

Nr. Duke Buoy (A.M.N.) : common in drift wood (R.A.T., S.P.)

SALCOMBE (A.M.N.)

Family Podoceridae

PODOCERUS VARIEGATUS Leach [*Chevreux & Fage*, 1925, p. 374]

Cawsand Bay, 6.5.07 (E.W.S.)

Sub-Order Hyperiidea

Family Hyperiidæ

HYPERIA GALBA (Montagu) [*Chevreux & Fage*, 1925, p. 401]

Plymouth, abundant (C.S.B.) : Plymouth, 1889 (A.M.N.) : occasionally

taken on Rhizostoma, Chrysaora, etc. (R.A.T.) : R. Tamar, one mile below Pentillie Quay, one specimen, 29.6.28, Aurelia also taken (E.P.)

PARATHEMISTO OBLIVIA (Kröyer) [*Chevreux & Fage*, 1925, p. 409, = *Themisto gracilipes* Norman]

Eddystone Gds. (G.C.B.) : West Ch., 18.10.06, 2 specimens (W.B.) : in plankton, common, July 1924 (F.S.R.)

Sub-Order Caprellidea

Family Caprellidae

PHTISICA MARINA Slabber [*Chevreux & Fage*, 1925, p. 434]

Plymouth (A.M.N.) : inside Drake's Is. (E.J.A.) : N. of Breakwater (T.V.H.) : Whitsand B., single specimen (J.T.C.) : Eddystone Gds. (E.J.A.) : one specimen S.W. of Eddystone, 40 fms. (Crawshay, 1912)

SALCOMBE (A.M.N.) : a few on Zostera bank off Ditch End ; a few in cheese-cloth trawl on Zostera bank between Snape's Pt. and Salcombe town (Allen & Todd, 1900)

PSEUDOPROTELLA PHASMA (Montagu) [*Chevreux & Fage*, 1925, p. 437]

Plymouth (A.M.N.) : moderately common, Millbay Ch. ; Asia Sh. ; Drake's Is. ; Queen's Gds. ; Yealm R. (R.A.T.) : 4 m. W. of Eddystone, single specimen (R.A.T.) : 2, 3, and 12 specimens at 3 positions S.W. of Eddystone, some with young 40-49 fms. (L.R.C.) : 100 yds. above Antony Creek in main stream, one specimen, 27.9.28 (E.P.)

SALCOMBE (A.M.N.) : common in dredge material (Allen & Todd, 1900)

Breeding : females with ova : Mar.-Apr. (R.A.T.)

PARIAMBUS TYPICUS (Kröyer) [*Chevreux & Fage*, 1925, p. 441]

Plymouth (A.M.N.) : Cawsand B. ; Jennycliff B. (T.V.H.) : 100 yds. above Antony Creek in main stream, one specimen, 27.9.28 ; brood pouch with embryos (E.P.)

CAPRELLA ACANTHIFERA Leach [*Chevreux & Fage*, 1925, p. 446]

Mouth of Yealm, Plymouth (var. *laevissima* Mayer) (A.M.N.) : Plymouth (C.S.B.) : Millbay Ch. ; Eddystone, on sponge (T.V.H.)

CAPRELLA ACUTIFRONS Latreille [*Chevreux & Fage*, 1925, p. 450]

Sound (Mr. Boswarva, per A.M.N.)

CAPRELLA LINEARIS (L.) [*Chevreux & Fage*, 1925, p. 456]

Plymouth (A.M.N.) : Drake's Is., L.W. (J.T.C.) : Millbay Ch. ; Queen's Gds. ; Yealm R. (T.V.H.)

CAPRELLA FRETENSIS Stebbing [*Chevreux & Fage*, 1925, p. 457]

SALCOMBE (A.M.N.)

CAPRELLA TUBERCULATA Bate & Westwood [*Chevreux & Fage*, 1925, p. 460]

Plymouth (A.M.N.) : occasionally in Sound (R.A.T.)

CAPRELLA AEQUILIBRA Say [*Chevreux & Fage*, 1925, p. 455]

Plymouth (A.M.N.) : Sound, common on buoys and hulks (R.A.T.)

Order SCHIZOPODA (=MYSIDACEA)

Family Mysidae

GASTROSACCUS SANCTUS (van Beneden) [*Zimmer*, 1909, p. 61]

Whitsand B., Aug. 1892 (w.g.) : July 1898 (E.W.L.H.) : Oct. 1899, abundant (w.I.B.) : Cawsand B., immature specimen in Apr. ; Yealm Est., single specimen among decaying *Zostera*, Oct. 1899 (w.I.B.) : abundant Whitsand B., Aug. 1903 (A.M.N.) : May 1903, abundant (s.p.)

Breeding : July (E.W.L.H.) : Aug. (w.g.) : Oct. (w.I.B., R.A.T.) : hatching out, May (R.A.T.)

HAPLOSTYLUS NORMANI G. O. Sars [*Zimmer*, 1909, p. 65]

At the surface about 1 m. S. of the Breakwater Fort, Sept. 1892 (w.g.) : Mewstone 'Amphioxus' Gd., Oct. 1899 (w.I.B.)

Breeding : Sept. (w.g.) : Oct. (w.I.B.)

ANCHIALUS AGILIS G. O. Sars [*Zimmer*, 1909, p. 66]

Plymouth, nr. Eddystone, 1889-90 ; Whitsand B., 1903 (A.M.N.) : Aug. 1898, 3. m. S. of Rame Hd. (E.W.L.H. and w.I.B.) : 1899, Cawsand B., few specimens, Feb. ; Mewstone 'Amphioxus' Gd., several in Oct. ; W. of Hand Deep, 33 fms., sand, abundant in June ; about 4 m. S. of Breakwater, abundant, Mar., etc. (w.I.B.) : Whitsand B., single specimen, May 1903 (s.p.)

Breeding : June (w.I.B., R.A.T.)

SIRIELLA ARMATA (Milne-Edwards) [*Zimmer*, 1909, p. 69]

Plymouth, chiefly in Whitsand B., 1889, 1903 (A.M.N.) : June 1893, Drake's I. (w.g.) : Cawsand B., few specimens, Apr., May, June, Sept. 1899, Apr. 1900 ; Jennycliff B., few specimens, Sept. and Oct. 1899 ; Whitsand B., abundant Aug. 1898 and Oct. 1899 ; Bovisand B., Oct. 1899 ; Yealm Est., Oct. 1899 and Apr. 1900 (w.I.B.) : a few, one in berry and with young embryos, Cawsand B., shrimp trawl, 20.3.06 (L.R.C.)

Breeding : June (w.g.) : Apr., Oct. (w.I.B., R.A.T.)

SIRIELLA CLAUSI G. O. Sars [*Zimmer*, 1909, p. 70]

Nr. Drake's I. ; Whitsand B., Plymouth, 1889 and 1903 (A.M.N.) : Cawsand B., few specimens, Apr., June, Sept. ; Jennycliff B., few specimens, June, Oct. ; Yealm Est., several specimens, among decaying *Zostera*, Oct. ; 2½ m. S. of the Breakwater Fort, single specimen at surface, Feb. 1899 (w.I.B.) : one specimen outside Breakwater, Oct. 1916 (M.V.L.)

SIRIELLA JALTENSIS Czerniavsky [*Zimmer*, 1909, p. 72]

Plymouth 1889, 1903 (A.M.N.) : at the surface 1 m. S. of the Breakwater Fort, Sept. 1892 ; Drake's I., abundant among weeds, June 1893 (w.g.) : Rum B., single specimen, Feb. 1901 (R.A.T.) : Jennycliff B. (F.W.G., w.I.B.)

Breeding : June (w.g., R.A.T.)

ERYTHROPS ELEGANS (G. O. Sars) [*Zimmer*, 1909, p. 79]

3 m. S.W. of Rame Hd., Aug. 1898 (E.W.L.H. and w.I.B.) : Rame-Eddystone Gds. ; Mewstone 'Amphioxus' Gds. ; etc. ; several specimens, Mar., June, Oct. and Nov. 1899 (w.I.B.) : nr. Eddystone, 1908 (A.M.N.)

Breeding : June ; Oct. (w.I.B.) : Oct. late embryos only (w.g.)

MYSIDOPSIS ANGUSTA G. O. Sars [*Zimmer*, 1909, p. 128]

Occasionally in 15-33 fms. (R.A.T.) : W. of Hand Deeps June ; 4 m. S.S.W. of Rame Hd., and Mewstone 'Amphioxus' Gd., Oct. ; 1 m. W. of Stoke Pt., Nov. 1899 (W.I.B.)

Breeding : June-Oct. (W.I.B., R.A.T.)

MYSIDOPSIS GIBBOSA G. O. Sars [*Zimmer*, 1909, p. 131]

Cawsand B., several occasions 1893-4 (W.G.) : Aug. 1898, few specimens 3 m. S.W. of Rame Hd. (E.W.L.H. and W.I.B.) : 1899 ; single specimen, Cawsand B. in Apr. ; three specimens W. of Hand Deeps in June (W.I.B.) : Apr. 1902, Jennycliff B. (F.W.G.)

Breeding : Apr. (W.I.B., R.A.T.) : July (W.G.)

LEPTOMYSIS MEDITERRANEA G. O. Sars [*Zimmer*, 1909, p. 132]

Plymouth (A.M.N.) : Cawsand B., common June 1893 (W.G.) : Aug. 1898 (E.W.L.H. and W.I.B.) : several specimens, Feb., Apr., May, June, Sept., Oct. 1899 (W.I.B.) : Jennycliff B., single specimen, Oct. and Dec. 1899 (W.I.B.) : Apr. 1902, single specimen (R.A.T.) : Bovisand B. ; Whitsand B. ; Yealm Est., among decaying *Zostera* ; Oct. 1899 (W.I.B.) : not common outside Breakwater, Nov. to Jan. 1916-17 (M.V.L.)

Breeding : Apr. (W.I.B., R.A.T.) : June (W.G.) ; Oct. ; Dec. (W.I.B., R.A.T.)

LEPTOMYSIS GRACILIS (G. O. Sars) [*Zimmer*, 1909, p. 134]

Plymouth 1893 (W.G.) : Aug. 1896, 3 m. W. by S. of Eddystone (W.I.B.) ; Aug. 1898, 3 m. S.W. of Rame Hd. (E.W.L.H. and W.I.B.) : June 1899, fairly abundant W. of Hand Deeps (W.I.B.) : plankton at night, abundant, July 1924 (F.S.R.)

Breeding : June (W.I.B., R.A.T.)

LEPTOMYSIS LINGUURA (G. O. Sars) [*Zimmer*, p. 135]

Whitsand and Bovisand Bays, 1889 and 1903 (A.M.N.) : Cawsand B., Rame Hd., on the shore among *Fucus* ; Whitsand B. ; 4 m. S.S.W. of Rame Hd. ; W. of Hand Deeps, on sand ; Yealm Est., among decaying *Zostera* ; several specimens, Feb.-Oct. 1899 (W.I.B.)

Breeding : Apr. ; Oct. (W.I.B., R.A.T.)

HETEROMYSIS FORMOSA S. I. Smith [*Zimmer*, 1909, p. 141]

Plymouth, rare, 1889 and 1903 (A.M.N.) : Millbay Ch., New Gds., Cawsand B., the Yealm, off Stoke Pt., a few at a time (W.G.) : Jan., 1899, Millbay Ch., Feb. 1900, Asia Sh. (W.I.B.) : Asia Sh., dredge, 26.10.24, with green coloured and well developed embryos, six green ova (nearly mature) in oviducts (N.J.B.)

Breeding : Oct.-Nov. (W.G.)

HEMIMYSIS LAMORNAE (Couch) [*Zimmer*, 1909, p. 143]

Plymouth (A.M.N.) : Cawsand B., July 1893 (W.G.) : Drake's I., one specimen (R.A.T.) : tank on N. side of Laboratory, 16.10.08 ; adults also numerous in early September ; young adults Oct. 16th, with many adults (A.J.S., A.J.M.-J.) : Eledone tank, 14.3.09, a great number making quite a cloud in corner of tank, females with eggs (E.W.N.) : Eledone tank in aquarium, 5.4.09, over 100, carrying eggs ; Conger tank, 29.3.18, since the autumn they were swarming in the tank, now much scarcer ; same

tank, 25.8.20, all sizes ; very plentiful Dec., Jan. 1920 ; still very plentiful 2.2.21 (A.J.S.) : Asia Sh., 3.11.24, dredge, immature female (N.J.B.). In June 1929, it has almost disappeared from the tanks (A.J.S.)

PRAUNUS INERMIS (Rathke) [*Zimmer*, 1909, p. 148]

Plymouth, 1889 (A.M.N.) : Sept. 1892 (W.G.) : 1898, Cawsand B., Bigbury B. in July (W.I.B.) : 1899, Cawsand B., Jennycliff B., Bovisand B., Whitsand B., Yealm Est., among decaying *Zostera*, few specimens, Feb.-Oct. ; 1900, Apr. (W.I.B.)

SALCOMBE. A few in cheese-cloth trawl on *Zostera* bank off Ditch End, and under the Marine Hotel (Allen & Todd, 1900)

Breeding : Apr. ; Oct. (W.I.B.)

PRAUNUS FLEXUOSUS (Müller) [*Zimmer*, 1909, p. 150]

Essentially an estuarine form, swarming about the shores of the Tamar at Saltash (especially in Summer) ; in small numbers in Sound ; R. Yealm (W.I.B.) : R. Tamar up to $\frac{1}{2}$ mile above Calstock ; R. Lynher up to $\frac{1}{2}$ m. above St. German's Bridge, Y.F.T., June-Oct. 1928, very abundant (E.P.)

SALCOMBE. Very common on *Zostera* bank south of Pilworthy Point, common on the *Zostera* off Ditch End, a few only from *Zostera* bank between Snape's Point and Salcombe, and two from *Zostera* on eastern side of Salcombe Harbour, between Ferry House and Millbay (Allen & Todd, 1900)

PRAUNUS NEGLECTA (G. O. Sars) (= *Macromysis nigra* Keeble and Gamble) is united by *Zimmer* [1909, p. 150] with *Praunus flexuosus*.

Predominant form in Sound, occurring in the shallows, especially Cawsand B., R. Yealm, Whitsand B., once (W.I.B.), Drake's Is. ; Cawsand B., several, female with young embryos 20.3.06 (L.R.C.)

SALCOMBE (A.M.N.) : in cheese-cloth trawl south of Pilworthy Point, on *Zostera* off Ditch End, and under Marine Hotel (Allen & Todd, 1900)

SCHISTOMYSIS SPIRITUS Norman [*Zimmer*, 1909, p. 152]

Whitsand B., abundant, July 1892 (W.G.) : 1897 (E.W.L.H.) : Aug. 1898, abundant (E.W.L.H. and W.I.B.) : May 1903 (S.P.) : Sound and Whitsand B., 1903 (A.M.N.) : Cawsand B., single specimens in Feb. and Apr. 1899 (W.I.B.) : 3 m. S.W. of Rame Hd., Aug. 1898 (E.W.L.H. and W.I.B.)

Breeding : Apr. (W.I.B., R.A.T.) : June ; July ; Aug., late stages only (W.G.) : large individuals almost disappeared by Aug., young numerous (W.G.)

SCHISTOMYSIS ORNATA (G. O. Sars) [*Zimmer*, 1909, p. 153]

R. Tamar, Saltash, Mar. ; Dec. ; 1899 (W.I.B.) : Feb. 1901 (W.I.B. and R.A.T.) : 3 m. S.W. of Rame Hd., few specimens Aug. 1898 (E.W.L.H. and W.I.B.) : Rame-Eddystone Gds. ; Mewstone Gds., etc., several specimens Mar.-Nov. 1899 (W.I.B.) : R. Lynher as far as Erth Hill, 13-24 ft. flood tide, stramin net, 20.7.28, females with eggs (E.P.)

Breeding : Feb. : Apr. : Oct. (W.I.B., R.A.T.)

SCHISTOMYSIS HELLERI (G. O. Sars) [*Zimmer*, 1909, p. 154]

Plymouth (A.M.N.)

SALCOMBE (W.I.B.) : not uncommon in pools on mud flats north of the Rectory, on east side of Southpool Lake (Allen & Todd, 1900)

SCHISTOMYSIS ARENOSA (G. O. Sars) [*Zimmer*, 1909, p. 155]Whitsand B. (A.M.N.) : Cawsand B., 1893 (W.G.) : Feb. 1899, four specimens ; Apr. 1900, single specimen (W.I.B.) : Whitsand B., 1892-93 (W.G.) : 1896 (T.V.H.) : Oct. 1899 (W.I.B.) : May 1903, several specimens, (S.P.) : Bovisand B. ; Yealm Est., on sand with decaying *Zostera*, Oct. 1899 (W.I.B.)

SALCOMBE (W.I.B.) : one in cheese-cloth trawl on the bar outside Harbour (Allen & Todd, 1900)

Breeding : June (W.G.) : Oct. (W.I.B., R.A.T.)

SCHISTOMYSIS PARKERI Norman [*Zimmer*, 1909, p. 157]

Whitsand B., 1896 (T.V.H.) : Tregantle, 1897 (E.W.L.H.)

MACROPSIS SLABBERI (van Beneden) [*Zimmer*, 1909, p. 158]Saltash, very abundant Mar. and Dec. 1899 ; Cawsand B., single specimen, Apr. 1900 (W.I.B.) : Tregantle, single specimen, Dec. 1897 (E.W.L.H.) : Whitsand B., several specimens, May 1903 (S.P.) : Whitsand B. 1903 (A.M.N.) : rare, outside Breakwater, Dec. 1916 (M.V.L.) : R. Tamar, up to $\frac{1}{4}$ m. or thereabouts above Calstock ; R. Lynher up to Penimble region, stramin net ; not collected in Hamoaze with Young-fish Trawl, June-Oct. 1928 ; breeding June-Sept., Oct., very abundant in the rivers apart from the Hamoaze (E.P.) : about 60 specimens, N. of Drake's L., coarse tow-net, 6.12.29 (A.J.S.)**DASYMYSIS LONGICORNIS** (Milne Edwards) [*Zimmer*, 1909, p. 164]

W. of Hand Deepes, June 1899 ; 4 m. S.S.W. of Rame Hd., Oct. 1899 ; several specimens (W.I.B.) : R. Tamar, common up to upper end of Morwell Rocks ; R. Lynher, common up to opposite Markwell L.W., at H.W. possibly passing by towards Tideford ; stramin net and hand-net, June-Nov. 1928, enormously common (E.P.)

Breeding : June ; Oct. (W.I.B.) : June-Nov. (E.P.)

NEOMYSIS VULGARIS (J. V. Thompson) [*Zimmer*, 1909, p. 166]

Kingsbridge Estuary ; Plymstock (A.M.N.) : Laira, 1897 (E.W.L.H.) : R. Lynher, tidal pool opposite Saltash, summer, 1898 (E.W.L.H. and W.I.B.) : R. Tamar, just above Saltash Bridge, few specimens, Mar. and Dec. 1899 ; Jennycliff B., single young specimen, Sept. 1899 (W.I.B.) : Saltash, Feb. 1901 (R.A.T.) : very abundant up to Morwell Rocks on River Tamar, and to Penimble on River Tiddy (E.P.)

Breeding : Feb. (R.A.T.)

Order EUPHAUSIACEA

Family **Euphausiidae** .**MEGANICTIPHANES NORVEGICA** (M. Sars) [*Zimmer*, 1909, p. 8]

Adults only occasionally outside Sound, probably coming from further

out to breed near the coast ; 1930, adults numerous once in February, from outside Eddystone. Eggs, nauplii and early larvae, Feb.-March, not seen every year : nauplius, metanauplius in winter ; 4.2.30, many in Young-fish Trawl from 2 m. E. of Eddystone, near bottom : Furcilia and Cyrtopia stages occasionally in spring and summer, 1924-26, unusually numerous in spring, 1930 (M.V.L.)

NYCTIPHANES COUCHI (Bell) [*Zimmer*, 1909, p. 10]

Probably the only resident in the district ; adults usually near the bottom in daylight and come up to the surface at night ; outside the Breakwater and all round, extending all over area, autumn, winter and spring, less in summer (M.V.L.)

Young (Calyptopis to Cyrtopia) Feb. onwards : females with eggs or nauplii throughout the year, chiefly spring (M.V.L.)

THYSANOESSA INERMIS (Kröyer) Hansen [= *Rhoda inermis* (Kröyer) *Zimmer*, 1909, p. 11, including the form *neglecta* = *Thysanoessa neglecta* (Kröyer)]

Both forms found together occasionally outside Breakwater, probably coming inshore from the outer waters to breed like *Meganyctiphanes norvegica* ; adults in winter and spring, larvae spring and summer. Both males and females abundant of the *inermis* form, males of the *neglecta* form very rare ; April 1924, 2 adult specimens of *inermis* form, one of *neglecta*, Young-fish Trawl, daytime, Station L 4 ; on a night trip in same month many adult specimens of both forms were collected by Mr. O. D. Hunt ; both forms shed eggs in glass jars the following day in the Laboratory ; a large quantity of adults in Y.F.T., with *Meganyctiphanes* and *Nyctiphanes*, from near bottom, 2 m. E. of Eddystone, 4.2.30 (M.V.L.)

Order STOMATOPODA

SQUILLA DESMARESTI Risso [*Bell*, 1853, p. 354]

Single specimen near New Gd. Buoy, Dec. 1900 (R.A.T.) : Eddystone bearing S. $\frac{1}{2}$, 2 $\frac{1}{2}$ m., Agassiz trawl, 20.9.05 (Capt. McKenzie, E.J.A.) : Rame Hd. bearing N.E. by N. ; Eddystone, S. $\frac{3}{4}$ W. about 3 $\frac{1}{2}$ m., otter trawl, 9.4.08 ; Rame-Eddystone, otter trawl, 1.4.09 ; Rame-Eddystone Gds., long shrimp-trawl, 14.6.10 ; 2 specimens, Rame-Eddystone Gds. ; Eddystone S.W. by W. 2 $\frac{1}{2}$ m., otter trawl, shrimp-net over cod-end, caught in the shrimp-net, 17.2.14 (A.J.S.) : 2 specimens, 4 m. S. of Mewstone, trawl, both alive and in excellent condition, not breeding, 17.3.27, 19.3.27 (C.M.Y.)

Breeding : Larvae occasionally met with in tow-nettings (E.J.A.) : *Erichthus* larvae, Rame E. by N. 4 m., Young-fish-trawl, at least 100 specimens, 12.8.14 (E.F.) : Larvae fairly common in Y.F.T., spring and summer, inside and outside Sound (M.V.L.)

SALCOMBE. Under Marine Hotel, hand and spade, 3.4.08 (A.J.S.)

Order DECAPODA

Sub-Order *Natantia*

Tribe *Caridea*

Family *Pandalidae*

PANDALUS MONTAGUI Leach [*Kemp*, 1910, p. 86]

Occasionally abundant during short periods, at other times apparently

quite absent (s.p.): Nov. 1887, large numbers in Batten Bay (w.h.): Feb. 1896, single specimen, Cawsand B. (t.v.h.): Aug. 1897; Sept. 1898 (E.W.L.H.): July-Aug. 1902; Aug. 1903 (s.p.)

Breeding: Jan. (w.g., m.v.l.): Feb. (w.g., t.v.h., r.a.t.): Mar., Apr., outside Sound; female in berry with newly extruded eggs from Sound (m.v.l.): Nov. (w.g., r.a.t.): Dec. (w.g., m.v.l.): larvae with those of *Pandalina*, very common in plankton, both inside and outside Sound, spring and especially summer, a few in autumn (m.v.l.)

PANDALINA BREVIROSTRIS (Rathke) [*Kemp*, 1910, p. 97]

Eddystone (A.M.N. and T.S.): common in Sound, especially on clean, coarse gravel and clinker grounds, 5-10 fms.; common on "Cellaria" grounds, 15-20 fms. (R.A.T.): at four positions 8-31 m. S.W. of Eddystone, 3 young, 40-47 fms. (Crawshay, 1912, p. 352): Eastern Mewstone Grounds (G.A.S.)

Breeding: females in berry, Mar. (R.A.T., s.p.): Apr. (w.g., R.A.T.): May-July (R.A.T.): thousands in berry, spring and early summer, Eastern Mewstone Gds. (G.A.S.): Larvae in plankton Mar.-June (R.G.): all through the spring and summer (M.V.L.): young hatched from eggs (R.G., M.V.L.)

SALCOMBE (A.M.N.)

Family **Hippolytidae**

HIPPOLYTE VARIANS Leach [*Kemp*, 1910, p. 100]

Common among weeds everywhere (A.M.N. and T.S.): more or less common everywhere among weed, L.W.-5 fms.; occasionally taken outside in 15-30 fms. (R.A.T.): 4 specimens 30 m. S.W. of Eddystone, 47 fms. (Crawshay, 1912, p. 352). *Hippolyte fascigera* Gosse, common in Cawsand B., is regarded by Kemp as synonymous with *H. varians*. It is easily distinguished by its tufts of hairs, but the young hatched from the egg are identical with those of *H. varians* (M.V.L.)

Breeding: Feb. (R.A.T.): Mar. (R.A.T., s.p.): Apr. (R.A.T.): May-July (w.g., R.A.T.): Aug.; Nov. (R.A.T.). Larvae in plankton almost throughout the year, chiefly near coast; hatched from egg (M.V.L.)

SALCOMBE. Generally taken with cheese-cloth trawl on *Zostera* banks, especially opposite Marine Hotel; in rock pools between Sandhill Point and South Sands Bay (Allen & Todd, 1900, p. 202)

HIPPOLYTE PRIDEAUXIANA Leach [*Kemp*, 1910, p. 101]=*H. viridis* (Otto)

Plymouth (A.M.N. and T.S.): Yealm Est., not uncommon (R.A.T.)

Breeding: July (R.A.T.): July-Aug., hatched from egg (M.V.L.)

SPIRONTOCARIS CRANCHI (Leach) [*Kemp*, 1910, p. 106]

Type-specimens taken by Cranch in Kingsbridge Est. (A.M.N. and T.S.): moderately common in Sound, low-water 25 fms., and on the outside grounds, 15-30 fms. (R.A.T.): one specimen dredged Asia Sh., 28.8.13, carrying eggs (J.H.O.): common in Sound (M.V.L.)

Breeding: Feb. (w.h.): Apr. (w.g., R.A.T.): May (w.g.): June; Aug. (R.A.T., M.V.L.): a female spawned in a Laboratory tank in Apr. (R.A.T.): larvae fairly common in plankton; hatched from egg, July (M.V.L.)

SALCOMBE. One in dredge between Snape's Point and mouth of Harbour (Allen & Todd, 1900, p. 202, as Hippolyte)

CARIDION STEVENI Lebour [1930, p. 185]

Rum B., 2.3.00 (R.A.T.): Drake's I., 11.3.02 (R.A.T.): Cawsand B. (shore), 18/19.12.08; 16.1.07 at Farmer's Cellars, Cawsand Bay, several, one female in berry; Wembury B. West, shore, 10.5.11, about 15 specimens, caught by hand, many more seen, in one case about 10 under one stone; Wembury B., shore, 29.5.11, female carrying eggs; Wembury B. W., in big rock pond, 23.3.13, 2 females with eggs, taken under stones; Wembury B. West shore 2/3.4.12 (J.H.O.): Rum B., Feb. 1929, 2 females in berry; one female, Wembury, August 1929, taken by W. Searle (M.V.L.)

Larvae (=Sars' *Pandalus bonnierii* larva) in plankton from early spring to middle of August, inside and outside Sound. Hatched from egg, March. Post-larvae and young reared from larvae in plankton (M.V.L.)

CARIDION GORDONI (Spence Bate) [Kemp, 1910, p. 109]

Adult not yet found in this area; post-larva from Mewstone Gds., bottom, June (G.A.S.): larvae (=Sars' *Pandalus borealis* larva) in plankton with that of *C. stiveni*, chiefly outside Sound, spring and summer until middle of September; post-larvae and young reared from larvae in plankton (Lebour, 1930, p. 185)

Family Alpheidae

ALPHEUS RUBER Milne-Edwards [Kemp, 1910, p. 120]

Not uncommon in 30 fms. (C.S.B., *vide* A.M.N. and T.S.): 2 females, one in berry, off Stoke Pt., ca. 1½ m. N. ½ E., dredge, 18.6.08 (W. DE M.): one very fine specimen, about 2½ inches long from rostrum to telson, Sound, shrimp trawl, 16.4.09; one specimen, 1½ m. off Rame, bearing N., otter-trawl, 30.4.09, in berry; Rame Hd., bearing N.E. 2-2½ m., Agassiz trawl, 3.5.10; 2 specimens, inner trawling grounds, beam trawl, 25/26.2.14 (A.J.S.): Rame mud (E.F.): several recorded from 1½ m. off Rame, 1919 (recorder not specified) many more preserved without records, some large females in berry; female in berry June, Aug., off Mewstone; young hatched from egg (M.V.L.): one specimen 3 m. S. of Breakwater Lt., Mewstone, 10° 3½ m., 11.12.28 (G.A.S.): hatched from egg, Aug. (M.V.L.)

Breeding: female in berry, July, Aug. (M.V.L.): Larvae of *Alpheus*, probably a mixture of this species and *A. macrocheles*, very frequent in plankton in summer and early autumn, especially common in late summer (M.V.L.)

ALPHEUS MACROCHELES (Hailstone) [Kemp, 1910, p. 120; Norman and Scott, 1906, p. 16]

Off Plymouth, not uncommon (C.S.B. *vide* A.M.N. and T.S.): one specimen Church Reef, Wembury B., under a stone, recorded as *A. ruber* (R.A.T.): one specimen at each of four positions 39-49 m. S.W. of Eddystone, 21-40 mm., the largest a female in berry, 40-50 fms. (Crawshay, 1912, p. 352): 2 specimens, Eddystone bearing S.W. 3 m., trawl, 5.3.13; Wembury B. West, shore collecting (A.J.S.): 20.4.13 (J.H.O.): 2 specimens, Rame-Eddystone Gds., one in a Chaetopterus tube, 3.3.14 (A.J.S.): Eddystone bearing S.W. 4 m., 3.3.14, otter trawl, in D net (J.H.O. and E.F.)

Breeding : one female in berry 15.6.28, dredge, locality not specified ; one female in berry, 18.2.28, dredge, locality not specified ; one female in berry, 20.11.28, trawl, locality not specified (M.V.L.)

Larvae in plankton in summer and autumn, specially common in summer ; hatched from egg, Nov. (M.V.L.)

ATHANAS NITESCENS (Montagu) [*Kemp*, 1910, p. 122]

Sound (Bell, 1853) : not uncommon in rock-pools and among corallines, *Fucus*, etc. (S.P.) : generally gregarious, 3-4 specimens under one stone (R.A.T.) : Rum B. ; Mt. Edgcumbe ; Wembury B. (R.A.T., S.P.) : Tinside (R.G., R.A.T.) : Cawsand B., occasionally between tide-marks ; occasional specimens, on the outside grounds, 15-30 fms. (R.A.T.) : Wembury B. W., on shore, 25.8.11, one female carrying eggs (J.H.O.) : one female in berry from below Laboratory, collected by W. Searle, July, 1929 (M.V.L.)

Larvae in plankton in summer and autumn, specially common in summer ; hatched from egg, July (M.V.L.)

SALCOMBE. Between tide-marks (A.M.N. and T.S.) : one specimen in dredge between Salstone and Snape's Point (Allen & Todd, 1900, p. 202) : Castle Rocks, Salcombe Estuary, low tide, 12.4.29 (G.M.S.)

Family **Processidae**

PROCESSA CANALICULATA Leach [*Kemp*, 1910, p. 123] = *Nika edulis* Risso

Plymouth (C.S.B. *vide* A.M.N. and T.S.) : the Sound, occasionally, but rare (W.G.) : Cawsand B., sometimes moderately common ; occasionally outside in 20-30 fms. (R.A.T.) : Jennycliff B. (A.J.S.) : inside the Eddystone about 50 large specimens and a few small from Plymouth trawlers, some with eggs, 3.12.13 (A.J.S.) : Wembury B. W., shore, 11.5.14, one female carrying a few eggs, green-coloured, which is unusual in the deep water specimens (J.H.O.)

Breeding : females in berry Feb. (S.P., A.J.S., M.V.L.) : Mar., Apr. (M.V.L.) : May (W.G.) : July (R.A.T.) : Sept. (M.V.L.) : hatching : Apr. (R.A.T.) : early larvae, Apr.-June ; Aug.-Sept. late stages ; Sept. (R.G.) : hundreds of larvae in Young-fish Trawl from near Eddystone throughout spring and summer ; hatched from egg, Apr. (M.V.L.)

Family **Palaemonidae**

LEANDER SERRATUS (Pennant) [*Kemp*, 1910, p. 130]

More or less common everywhere among weed (R.A.T., S.P.) : many from shrimp trawl in Sound, 9.3.23 and just previously, but of over 60 examined, only seven were females (A.J.S.) : R. Tamar, common, taken as far as Pentillie Quay ; R. Lynher, common, taken as far as confluence of Tiddy and Lynher, Young-fish Trawl, June-Oct. 1928 (E.P.)

SALCOMBE. Present on all the *Zostera*, mud and sand-banks, when covered with water (Allen & Todd, 1900, p. 202)

Breeding : Jan.-Feb. (W.G., R.A.T., M.V.L.) : Mar.-Apr. (W.G., R.A.T., S.P.) : May (W.G., R.A.T.) : June (W.G.) : Nov. (W.G., R.A.T.) : Dec. (W.G.) : Larvae in plankton most of the year, hatched from egg, April (M.V.L.)

LEANDER SQUILLA (L.) [*Kemp*, 1910, p. 132]

Plymouth (A.M.N. and T.S.): the Sound, not uncommon between tide-marks (R.A.T.): R. Lynher, as far as shore above Ince Castle; R. Tamar, as far as Neille Pt., 1/17.8.28, Y.F.T. and hand-net (E.P.)

Breeding: May (R.A.T.): July, and earlier (w.g.): Hatched out in Aug. (R.A.T.)

SALCOMBE (A.M.N.)

LEANDER LONGIROSTRIS (Milne-Edwards) [*de Man*, 1915, p. 149]

4 specimens, one young male, 3 females (2 young, one large full-grown without eggs), Lynher Estuary, 27.9.27, push-net (O.D.H.): R. Tamar, up to $\frac{1}{4}$ m. above Calstock Bridge; R. Lynher, up to $\frac{1}{4}$ m. above St. German's Bridge, June-Oct. 1928; young adults taken in St. John's Lake, 16.9.28; berried female, Young-fish Trawl and hand net; commonest in upper part of estuaries (E.P.)

Dr. R. Gurney had found larvae in the Sound (July 1922), before the adults were discovered (M.V.L.)

PALAEMONETES VARIANS (Leach) [*Kemp*, 1910, p. 132]

In brackish water, Chelson Meadow (A.M.N.): Saltram, Laira; etc. (R.A.T.): Erth, R. Lynher, common in pools on a salt-marsh (W.I.B.): tributaries of R. Plym, very common (W.F.R.W.): 1930, very common in Chelson Meadow (M.V.L.)

Breeding: Apr. (R.A.T.): May-June (w.g., R.A.T.): July; Aug., late stages only (w.g.): Apr.-Aug. (M.V.L.)

TYPTON SPONGICOLA da Costa [*Heller*, 1863, p. 254]

Rare in sponges, 4 fms., Plymouth (C.S.B. *vide* A.M.N. and T.S.): off Mewstone in *Desmacidon fruticosum*, 1889 (A.M.N.): 2 specimens in Desmacidon, dredged 2 to 3 m. W. of Eddystone, 10.4.11 (J.H.O.): 2 specimens from *Desmacidon fruticosum*, 31.7.13, one with larvae nearly hatching; one specimen in *Desmacidon fruticosum*, Mewstone Ledge, dredge, with larvae nearly hatching, 17.7.14; 6 specimens (4 females, 2 males) in Desmacidon, Mewstone Ledge, trawled, with larvae nearly ready to hatch, 17.7.24; 7 specimens (4 females in berry and 3 small males), Mewstone Ledge, trawled, 22.7.24; 4 specimens, all females, Revelstoke Pt. bearing N.N.E., Mewstone bearing N.N.W., in two small pieces of *Desmacidon fruticosum*, dredge 27.10.25, 3 specimens, all females, Mewstone Ledge, Stoke Pt. one with eggs but no sign of development, one with eggs ready to extrude, one with clear gonad, not developed, dredge, 12.5.27 (A.J.S.): Looe-Eddystone Gds., two tiny specimens in Desmacidon (J.H.O.): one with eggs nearly ready to hatch June 1924, eggs hatched in plunger jar (M.V.L.)

Family Crangonidae

CRANGON VULGARIS L. [*Kemp*, 1910, p. 137]

More or less abundant everywhere on sand, L.W.-10 fms. (R.A.T., S.P.): common up to $\frac{1}{4}$ m. above Calstock Bridge; and up to $\frac{1}{4}$ m. above St. German's Bridge, June-Oct. 1928 (E.P.)

Breeding : Jan.-Aug. (W.G., R.A.T.) : Nov. (R.A.T.) : Dec. (W.G.) : a few in berry practically all the year round, most abundant spring and summer ; larvae in plankton most of the year, especially spring, scarce in autumn ; larvae hatched from eggs, Apr., May (M.V.L.)

SALCOMBE. On all mud flats in Kingsbridge Est. and in the upper parts of Salcombe Harbour, many young (June-Sept.) (Allen & Todd, 1900, p. 201)

CRANGON ALLMANI Kinahan [*Kemp*, 1910, p. 138]

Plymouth 1892 (W.G.) : very rare 15-30 fms. (R.A.T.) : 3 m. S.S.W. of Rame Hd., common Aug. 1898 (W.I.B.) : one specimen 40 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 352) : common on Eddystone Gds. (G.A.S., M.V.L.). In berry, Feb., Apr., hatched out Mar. Larvae common in outside plankton Mar., Apr. (M.V.L.)

PHILOCHERAS TRISPINOSUS (Hailstone) [*Kemp*, 1910, p. 146]

Whitsand B. (A.M.N.) : Sound, occasionally ; Whitsand B. common ; Yealm Est., occasionally, (R.A.T.) : Cawsand B. (W.I.B.)

Breeding : Females in berry : Apr. (T.V.H.) : May-June (R.A.T.) : July (W.G.) : Aug. (J.T.C.) : hatching, May (R.A.T.) : early larval stages, Apr.-May, Sept. (R.G.) : larvae hatched from eggs, July (M.V.L.)

SALCOMBE. Eight specimens on clean sand of the bar, with cheese-cloth trawl (Allen & Todd, 1900, p. 202, as Crangon)

PHILOCHERAS SCULPTUS (Bell) [*Kemp*, 1910, p. 148]

Plymouth, 20 fms. (C.S.B. and W.G.) : occasionally, 15-30 fms. (R.A.T.) : fairly common Mewstone Grounds, 1928-29 (G.A.S.)

Breeding : June (W.G., M.V.L.) : Aug. (R.A.T.) : larvae hatched from eggs, Aug. (M.V.L.)

PHILOCHERAS FASCIATUS (Risso) [*Kemp*, 1910, p. 151]

Plymouth, 20 fms. (C.S.B.) : Rum B. ; Jennycliff B. ; Cawsand B. ; sand patch N. of Drake's I. ; not uncommon, L.W.-5 fms. (R.A.T.) : W. entrance (J.T.C.)

Breeding : Mar.-Apr. (R.A.T.) : May (W.G.) : hatching out, Apr. (R.A.T.) : early larvae, May, July-Sept. (R.G.) : Mar.-Aug., larvae in plankton (M.V.L.)

SALCOMBE. (J. Alder *vide* A.M.N.)

PHILOCHERAS BISPINOSUS (Hailstone and Westwood) = *Crangon nanus* Kröyer [*Kemp*, 1910, p. 152]

At the surface in Sound, Feb. 1887 (W.H.)

Females in berry, June-July (R.A.T., M.V.L.) : early larvae, June, Aug.-Sept. (R.G., M.V.L.) : larvae hatched from egg, July (M.V.L.)

PONTOPHILUS SPINOSUS (Leach) [*Kemp*, 1910, p. 160]

Plymouth, frequent in 6-15 fms. (C.S.B. *vide* A.M.N. and T.S.) : Mewstone Gds. ; 1 m. W. of Stoke Pt. ; not uncommon on coarse sand and medium gravel (R.A.T.) : Rame-Eddystone Gds. (E.W.L.H.)

Females in berry : Jan., Mar.-Apr. (R.A.T.) : Oct. (M.V.L.) : Dec. (E.W.L.H.) : hatching out Apr. (R.A.T.) : early larvae, Apr.-May (R.A.T.),

R.G.) : larvae in plankton Feb.-Sept. (M.V.L.) : rare after June, 1925-26 (F.S.R.)

Sub-Order *Reptantia*

Tribe *Palinura*

Family **Palinuridae**

PALINURUS VULGARIS Latreille [*Selbie*, 1914, p. 42]

Common among rocks, the Sound, Eddystone Gds., Mewstone Gds., etc. (R.A.T., E.J.A.) : young 3 ins. long from rostrum to tip of tail, Mewstone Ledge, dredge, 17.7.14 (A.J.S.)

Females in berry, Apr.-May (R.A.T.) : Nov. (M.V.L.) : Dec. (W.H.). Hatching July (J.T.C.) : Phyllosoma stage, Mar. (R.G.) : phyllosoma and puerula stages, near Eddystone, from surface to a certain distance from bottom, June-Sept. 1913 (E.L.B.) : larva in plankton Feb.-Aug., sometimes very abundant (M.V.L.) : late stages, July-Aug. (F.S.R.)

SALCOMBE. According to Salcombe fishermen sometimes taken in tuck-netting, and occasionally found in holes at the edge of the *Zostera* bank (Allen & Todd, 1900, p. 201)

Family **Scyllaridae**

ARCTUS URSUS Dana (= *Scyllarus arctus*) [*Heller*, 1863, p. 195]

Millbay Dock, single specimen, Apr. 1892 (R.A.T.) : off the Breakwater Lt., single specimen in a crab pot, Aug. 1897 (J.T.C.) : 5 m. S. of Eddystone, single specimen, Jan. 1900 (R.A.T.)

Breeding : Mar. (S.P.) : Phyllosoma stage, near Eddystone, from surface to a certain distance from bottom, July, Aug. 1913 (E.L.B.)

Tribe *Astacura*

Family **Nephropsidae**

HOMARUS VULGARIS Milne-Edwards [*Selbie*, 1914, p. 53]

Common among rocks, occasionally between tide-marks ; Rum B. ; Wembury B. ; etc. (R.A.T.) : occasionally on sand ; Eddystone Gds. (E.J.A.)

Females in berry : May-June (R.A.T.) : July (W.G., R.A.T.) : Aug. (W.G.) : Sept.-Dec. (R.A.T.) : berried lobster taken by hand, Wembury B. (Church Reefs), 2.4.23 (J.H.O.) : larvae newly hatched and first moult, very abundant at surface, July 1897 (W.I.B.) : larvae at surface, Aug. 1897 (E.W.L.H.) : larvae in plankton, Jan., Apr.-Oct., Dec., only few specimens at one time (M.V.L.)

SALCOMBE. Occasionally taken in push-nets and when tuck-netting (Allen & Todd, 1900, p. 201)

Tribe *Anomura*

Family **Galatheididae**

GALATHEA INTERMEDIA Lilljeborg [*Selbie*, 1914, p. 66]

Plymouth, frequent in 10-45 fms. (C.S.B. *vide* A.M.N. and T.S.) : Plymouth, Eddystone (A.M.N.) : Asia Sh. ; Millbay Ch. ; 3 m. S.S.W. Breakwater Lt. ;

5 m. S.W. Penlee; 1 m. S.S.W. Yealm Hd. (w.I.B.): Queen's Gd.; Mewstone Gd.; Rame-Eddystone Gds. (R.A.T. and w.I.B.): one specimen 8 m. and one at 28 m. S.W. of Eddystone, 40-45 fms. (Crawshay, 1912, p. 354)

Breeding: Mar. (w.G., R.A.T.): larvae in plankton in spring, hatched from egg, Aug. (M.V.L.)

SALCOMBE (A.M.N.): very common in dredge between Salstone and Snape's Point; also, but not commonly, between Snape's Point and mouth of Harbour (Allen & Todd, 1900, p. 201)

GALATHEA DISPERSA Bate [*Bonnier*, 1888, p. 154; *Crawshay*, 1912, pp. 352 and 353] as distinct from *G. nexa* (see Lebour, 1930, p. 175)

Plymouth (C.S.B., A.M.N.): abundant everywhere, 10-30 fms. (S.P.): Queen's Gd., common; Duke Rk., common; Cawsand B., occasionally (R.A.T.): Millbay Pit (w.I.B., R.A.T.): Rame-Eddystone Gds.; Mewstone Gds.; etc. (w.I.B., R.A.T.): Eddystone Gds., on all grounds and in almost every haul (E.J.A.): one to three specimens from 13 positions, 8-46 m. S.W. of Eddystone (Crawshay, 1912, p. 352): the commonest *Galathea* in the outside grounds (M.V.L.)

Breeding: Mar. (w.G., R.A.T.): May (S.P.): females in berry through spring and summer: larvae in plankton chiefly from outside, from early spring to late autumn, sometimes in winter: eggs hatched out in Apr. (M.V.L.)

SALCOMBE (C.S.B., A.M.N.)

GALATHEA NEXA Embleton [*Bonnier*, 1888, p. 149; *Crawshay*, 1912, p. 353] as distinct from *dispersa* (see Lebour, 1930, p. 175)

Six specimens from one, and one from a second position, 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 353)

Selbie (1914, p. 70) regards this species and *G. dispersa* as one.

GALATHEA SQUAMIFERA Leach [*Selbie*, 1914, p. 69]

Abundant under stones on all rocky shores, L.W.-3 fms. (S.P.): Millbay Ch., Queen's Gd., Yealm R., occasionally (R.A.T.): one specimen 16 m. and one 17 m. S.W. of Eddystone, 42-43 fms. (Crawshay, 1912, p. 354)

Breeding: Jan.-May (R.A.T.): Feb., Apr.; larvae in plankton in spring (M.V.L.)

SALCOMBE. A few in dredge between Salstone and Snape's Point; one in a prawn-pot, 4 to 5 fms. off Ditch End (Allen & Todd, 1900, p. 201)

GALATHEA STRIGOSA (L.) [*Selbie*, 1914, p. 72]

Breakwater, occasionally; Mt. Edgcombe (R.A.T., S.P.): Drake's I. (T.V.H.): off Batten Breakwater, one specimen; off Yealm Hd., 18 fms., one specimen (J.T.C.): Breakwater, female carrying eggs, 20.2.09; Rum B., 6 specimens, all carrying eggs in various stages of development, some nearly ready to hatch; Eddystone bearing W. by N., ca 6 m. (E.F.): shore, 23.2.17 (A.J.S.)

Female in berry, eggs halfway to hatching, Millbay Pit, 2.1.30, dredge hatched Apr. (M.V.L.): larvae in both inside and outside plankton in spring (M.V.L.)

MUNIDA BAMFFICA (Pennant) [*Selbie*, 1914, p. 73] (= *Munida rondeleti* Bell)

Rame-Eddystone Gds., Eddystone bearing N. by E. 3 m., otter-trawl, 28.6.09; inner trawling gds., Plymouth trawler, 24.7.13, 7.8.13, 13.8.13; inside Eddystone, Plymouth trawler, night 7/8.7.13; Eddystone bearing N.E., Plymouth trawler, 8.11.13; 4 specimens, outer trawling grounds, Eddystone bearing E.N.E. Plymouth trawler, 14.8.13; Yealm Pt., bearing N.E. by N. 2 m., otter-trawl, 22.4.14 (A.J.S.)

Females in berry, Jan.-April (M.V.L.): larvae in plankton Jan.-June. Larvae hatched from egg, Mar. (M.V.L.)

Family **Porcellanidae**

PORCELLANA PLATYCHELES (Pennant) [*Selbie*, 1914, p. 87]

Under stones on all rocky shores, L.W.-3 fms. (S.P.)

Females in berry: Mar. (R.A.T.): Apr. (W.G., R.A.T.): May (W.G.): June-July (W.G., S.P.): Aug. (R.A.T.): early larval stage, Aug. (R.G.): Porcellana larvae, species not identified, in plankton spring, summer and autumn (M.V.L.)

SALCOMBE. Recorded only from under rocks, etc., between Sandhill Pt. and South Sands B. (Allen & Todd, 1900, p. 201)

PORCELLANA LONGICORNIS (L.) [*Selbie*, 1914, p. 87]

More or less abundant on all grounds, L.W.-30 fms. (S.P.): from 12 positions 8-30 m. S.W. of Eddystone, 40-50 fms. (Crawshay, 1912): Jennycliff B.; nr. Mallard Buoy; off Eddystone (E.F.): mussel bed off Neille Pt. opposite Tavy, common; larvae in plankton up to beach 100 yds. above Antony Creek, 3.10.28 (E.P.)

Females in berry: Mar., Apr. (W.G., R.A.T., S.P.): May (W.G., S.P.): June (W.G., R.A.T.): July (W.G., R.A.T., S.P.): Aug. (R.A.T.): early larval stage, Mar. (R.G.)

SALCOMBE. Recorded only from dredgings between Snape's Point and the Salstone, probably taken elsewhere (Allen & Todd, 1900, p. 201)

Tribe *Thalassinidea*

Family **Axiidae**

AXIUS STIRHYNCHUS Leach [*Selbie*, 1914, p. 89]

Plymouth (G.M. *vide* A.M.N.): male from under stone off Penlee Pt., 1.4.08, brought in by W. Searle (W. DE M.): Wembury shore under stone, Laminaria zone, Church Reefs, hand, 2.4.23, female in berry (G.B.): one female apparently lately spawned, shore collecting, Wembury, by hand, 15.8.28, collected by W. Searle (M.V.L.)

Larvae in plankton, summer, early autumn (M.V.L.)

Family **Laomedidae**

JAXEA NOCTURNA (Chiereghin) Nardo [*Selbie*, 1914, p. 96]

Larvae from Salcombe (R.G.): larvae in plankton, Looe-Eddystone Gds., Aug. 1913 (E.L.B.): larvae not uncommon occasionally outside the Breakwater, summer (M.V.L.)

Family **Callianassidae**

CALLIANASSA SUBTERRANEA (Montagu) [1805, p. 88, as *Cancer astacus subterraneus*]

4 fms. off Plymouth (C.S.B.) : Rame-Eddystone Gds., 3-4 m. S. of Rame Hd., 4.4.11, trawl, found dead, amongst hydroids after capture (J.H.O.) : Rame mud (E.F.) : common in certain localised patches of fine muddy sand, Mewstone Gds., 1928-29 (G.A.S.)

Larvae very common in plankton in summer and early autumn (M.V.L.) (recorded previously as *Calocaris macandreae*)

SALCOMBE. Montagu's type was from Kingsbridge Estuary. Millbay, in muddy sand on *Zostera* bed, 26.3.29 (J.H.O.)

UPOGEBIA (subgenus **GEBIOPSIS**) **DELTAURA** Leach [Selbie, 1914, p. 103]

SALCOMBE. Found with *Upogebia stellata*, a day's hunting may produce a dozen specimens (W. DE M., 1910, p. 476)

Breeding : spring and summer ; berried female eggs about half developed Apr. 1930 (M.V.L.) : larvae hatched from egg (G.E.W.)

UPOGEBIA STELLATA (Montagu) [Selbie, 1914, p. 104]

Young specimens dredged near mouth of Yealm and from fish stomachs at Plymouth (A.M.N.) : Norman includes *U. stellata* and *U. deltaura* here : occasional specimens between tide-marks in the Yealm and under Mt. Edgcumbe, also in dredgings from Queen's Gds., and a single specimen 5 m. W. $\frac{1}{4}$ S. of Rame Hd. (R.A.T.) : Yealm sand bank, female in berry, dug out, 30.3.07, larvae hatched 16.5.07 (W. DE M.) : mouth of River Yealm, N. side in *Zostera* bed, 6.3.16, female carrying eggs ; S. side, opposite houseboats (*Zostera* bed), 7.3.16, female in berry ; from lobster-pot, Plymouth Sound, female in berry, 27.11.30 (A.J.S.)

Breeding : Aug. (R.A.T.) : Larvae of *Upogebia* (species not determined) very common in plankton in spring and summer ; also post-larvae in late summer (M.V.L.) : hatched from egg (G.E.W.)

SALCOMBE (G.M. and A.M.N.) : below Marine Hotel on *Zostera* bank (Allen & Todd, 1900, p. 201) : Estuary mud flat, 30.3.07, 3 specimens in berry, larvae visible Apr. 7th (W. DE M.) : *Zostera* bed, W. side 200 yds. S. of Marine Hotel, 24.2.21, male and female in berry (R.W.) : with early eggs, Apr. 1930 (M.V.L.)

Tribe *Paguridea*Family **Paguridae**

DIOGENES PUGILATOR (Roux) [Selbie, 1921, p. 4]

Mouth of Yealm (A.M.N.) : Whitsand B. (T.V.H.)

Breeding : July (W.G.)

SALCOMBE. One specimen only in the cheese-cloth trawl, on the bar, outside Salcombe Harbour (Todd in Allen & Todd, 1900, p. 201)

EUPAGURUS BERNHARDUS (L.) [Selbie, 1921, p. 15]

Generally distributed on sand, gravel and stones, 3-30 fms. (R.A.T., S.P.) : the shell inhabited by this species usually affords lodgment for one or more specimens of *Calliactis parasitica* or else it is invested with a colony of

Hydractinia echinata ; also its apical whorls are occupied by the polychaete *Nereis fucata* (R.A.T., S.P.) : single or few specimens at 16 positions 8-40 m. S.W. of Eddystone 40-49 fms. in Buccinum shells and in the sponge *Ficulina ficus* ; no occurrence of the associated anemone *Calliactis parasitica* (Crawshay, 1912, p. 354) : St. John's Lake ; Bull Pt. below Saltash, 19.7.28, one specimen, 16.9.28, hand (E.P.)

SALCOMBE. Young very common on the Salstone and opposite Marine Hotel, running about between tide-marks ; present in all the dredgings (excepting in the " Bag ") in varying numbers ; a few large specimens were taken inhabiting Buccinum shells to which were attached *Calliactis parasitica* (Allen & Todd, 1900, p. 200)

EUPAGURUS SCULPTIMANUS (Lucas) [Selbie, 1921, p. 19]

Near Eddystone, dredged, 1889, 1903 (A.M.N.) : Rame-Eddystone Gds., in *Ficulina* (R.A.T.) : from one to three specimens at 11 positions, 17-48 m. S.W. of Eddystone, 42-51 fms. (Crawshay, 1912, p. 355)

EUPAGURUS CUANENSIS (Thompson) [Selbie, 1921, p. 26]

Plymouth (A.M.N.) : Mewstone Gds., not uncommon, generally with *Ficulina ficus* ; Rame-Eddystone Gds., occasionally (R.A.T.) : Eddystone Gds., never in large numbers, and confined to the gravel grounds in the neighbourhood of the Eddystone (E.J.A.) : Yealm R., occasionally (R.A.T.) : one or two specimens only at each of 9 positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 354)

SALCOMBE (A.M.N.) : taken most commonly between Snape's Pt. and the Salstone ; a few West of the Salstone and between Snape's Pt. and the mouth, all in the dredge (Allen & Todd, 1900, p. 200)

Females in berry : Mar.-Apr. (R.A.T.)

EUPAGURUS PRIDEAUXI (Leach) [Selbie, 1921, p. 34]

Moderately common, 15-30 fms. (R.A.T.) : Eddystone Gds., absent on the fine sand of the ' inner ' and ' outer ' trawling grounds (E.J.A.) : almost always associated with *Adamsia palliata* (R.A.T., S.P.) : a specimen trawled 2 m. S.W. of Penlee had a *Calliactis parasitica* upon its shell as well as the normal *A. palliata* (E.W.L.H.) : occasionally the shell is invested with a colony of *Hydractinia echinata* in place of the *Adamsia palliata*, and very rarely both are present upon the same shell (S.P.) : single or few specimens at 18 positions, 8-40 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 354) : *Nereis fucata* occasionally present in shell, Mewstone Gds., 1928-29 (G.A.S.)

Females in berry : Jan. (R.A.T.) : Mar.-July (W.G., R.A.T.) : Sept. (S.P.) : hatching out, Mar.-Apr. (R.A.T.) : June (S.P.) : July-Aug. (R.A.T.) : early larval stages, Mar.-Apr. (R.G.)

SALCOMBE. Several specimens in dredgings taken between Salstone and the mouth of the Harbour, sometimes with *Adamsia palliata* (Allen & Todd, 1900, p. 200)

ANAPAGURUS LAEVIS (Thompson) [Selbie, 1921, p. 44]

Plymouth (A.M.N.) : common on the Mewstone Gds. with *Epizoanthus incrustatus* ; the Sound, occasionally ; moderately common on other grounds, 15-30 fms. (R.A.T.) : Eddystone Gds. (E.J.A.) : single or few specimens at 5 positions, 20-40 m. S.W. of Eddystone, 42-49 fms. ; a

single specimen recorded with the commensal polychaete *Nereis fucata* (Crawshay, 1912, p. 355)

Breeding : Feb. (R.A.T.) : Apr. (W.G., R.A.T., M.V.L.) : May (W.G.) : July (R.A.T.) : Aug. (S.P.)

SALCOMBE (A.M.N.) : taken frequently in the dredge in all parts of the Channel between the mouth of the Harbour and the Salstone, generally inhabiting *Turritella* shells (Allen & Todd, 1900, p. 200)

ANAPAGURUS HYNDMANNI (Thompson) [Selbie, 1921, p. 49]

Plymouth (A.M.N.) : 2 specimens apparently belonging to this species from 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 355)

SALCOMBE (A.M.N.)

Larvae of Hermit Crabs, species not identified, abundant in both inside and outside plankton in spring and summer (M.V.L.)

Tribe *Brachyura**

Family **Dromiidae**

DROMIA VULGARIS Milne-Edwards [Bell, 1853, p. 369]

Duke Rk., female in *Ficulina ficus*, dredge, 26.10.06 (L.R.C.) : Mewstone Ledge, female, close to 'the Slimers,' 7.7.09, dredge, in berry (A.J.S.) : female from Bigbury B., 20.9.19 (A.J.S.)

Family **Portunidae**

PORTUNUS CORRUGATUS (Pennant) [Palmer, 1927, p. 881]

Queen's Gds. ; Millbay Ch. ; not uncommon (R.A.T.) : Drake's I., between tide-marks, one specimen (T.V.H.) : Cawsand B. (E.W.L.H.) : Bovisand B. (J.T.C.) : New Gds., 7.12.06, dredge (L.R.C.) : much less common than it was some years ago, occurs on usual dredging and trawling gds., both inside and outside the Sound (M.V.L.)

Breeding : June, Aug. (R.A.T.) : berried females, April, May, June ; larvae hatching out June ; no larvae seen in plankton (M.V.L.)

SALCOMBE (A.M.N.) : once only, in dredge between Snape's Pt. and the Salstone (Allen & Todd, 1900, p. 200)

PORTUNUS PUBER (L.) [Palmer, 1927, p. 882]

Common among stones on all rocky shores, between tide-marks 5 fms. (S.P.) : sometimes trawled beyond Breakwater (M.V.L.)

Females in berry : Feb.-May ; July (R.A.T.) : zoeae hatching out, Mar.-May (R.A.T.) : berried females chiefly in spring, rarely through summer and as late as November ; larvae in plankton April to August, rarely in autumn ; chiefly April-June ; young hatched, May-July (M.V.L.)

PORTUNUS ARCUATUS Leach [Palmer, 1927, p. 884]

Plymouth, mouth of Yealm (A.M.N.) : Queen's Gd. (R.A.T.) : Cawsand B. (T.V.H., E.W.L.H.) : Yealm R., not uncommon (R.A.T., T.V.H.) : Laira (T.V.H.) : Jennycliff B., 22.7.09, in berry ; Asia Sh., 9.2.11, in berry (A.J.S.)

*In classifying this group into families, Lebour's (1928) emended classification of Borradaile is used.

12 Breeding : Feb. (A.J.S.) : Mar. (w.G.) : Apr.-May (w.G., R.A.T.) : July (A.J.S.) : April to Sept. (M.V.L.) : larvae in plankton, spring and summer (M.V.L.)

SALCOMBE (A.M.N.)

PORTUNUS PUSILLUS Leach [*Palmer*, 1927, p. 885]

Plymouth (A.M.N.) : not uncommon in dredgings from Sound and outside grounds 15-30 fms. ; Queen's Gds., occasionally ; Drake's I., occasionally between tide-marks ; Yealm R., not uncommon (R.A.T.) : Eddystone Gds., on gravel, and occasionally on sand grounds adjoining the gravel (E.J.A.) : at 8 positions 8-40 m. S.W. of Eddystone, 40-52 fms. 2 in berry (Crawshay, 1912, p. 359) : off Eddystone (E.F.) : common inside and outside Sound on sandy bottom (M.V.L.)

Females in berry : Feb.-May (R.A.T.) : Apr.-July ; larvae in plankton spring and summer (M.V.L.)

SALCOMBE (A.M.N.) : commonest in dredge material from between Snape's Pt. and the Salstone, a few between Snape's Pt. and the mouth of the Harbour (Allen & Todd, 1900, p. 200)

PORTUNUS MARMOREUS Leach [*Palmer*, 1927, p. 888]

Plymouth, occasionally (C.S.B.) : Whitsand B., 20-30 specimens, 18 and 19.9.06 ; six males, Cawsand B., 30.3.09 (A.J.S.) : one specimen, 29 m. S.W. of Eddystone, 46 fms. (Crawshay, 1912, p. 359) : one specimen S. of Mewstone buoy (L.R.C.) : mud, Rum B. (E.F.) : fairly common both inside and outside the Sound on sandy bottom (M.V.L.)

Breeding : May (w.G.) : May-July ; larvae in plankton spring and summer (M.V.L.)

PORTUNUS HOLSATUS Fabricius [*Palmer*, 1927, p. 889]

Plymouth (C.S.B.) : Queen's Gd. ; Cawsand B. ; Whitsand B. (E.W.L.H.) : occurs more frequently than *P. marmoreus* but in the same situations both inside and outside the Sound (M.V.L.)

Breeding : Mar. (w.G.) : April-Aug. ; larvae in plankton spring and summer (M.V.L.)

PORTUNUS DEPURATOR (L.) [*Palmer*, 1927, p. 893]

Near Eddystone (A.M.N.) : Plymouth, occasionally, 3-45 fms. (C.S.B.) : generally distributed, 3-30 fms., sometimes in large numbers (R.A.T., S.P.) : one specimen, 17 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 359) : the commonest of all the *Portunus* species in the district, occurring abundantly both outside and inside the Sound (M.V.L.)

Breeding : Jan.-Feb. (R.A.T.) : Mar.-Apr. (w.G., R.A.T., S.P.) : May-July (w.G., R.A.T.) : Aug. (w.G.) : Sept., Nov. (R.A.T.) : Mar.-Oct., larvae in plankton chiefly in spring and summer (M.V.L.)

SALCOMBE (A.M.N.) : one only recorded from dredgings between Snape's Pt. and mouth of Harbour (Allen & Todd, 1900, p. 200)

PORTUNUS TUBERCULATUS Roux [*Palmer*, 1927, p. 894]

A single specimen at each of three positions, 18-39 m. S.W. of Eddystone, 43-49 fms. (Crawshay, 1912, p. 359)

BATHYNECTES LONGIPES (Risso) [*Bell*, 1853, p. 361, as *Portunus*]

Near Eddystone, on fine sand (w.g.) : Mewstone Ledge, 9.6.08, carrying eggs which hatched 18.6.08 ; one specimen, Yealm Pt. N. by E. $1\frac{1}{2}$ m., 10.5.09 ; two females in berry, Millbay Ch. ; one male and two females (one in berry), Stoke Pt.-Mewstone, 30.6.09 ; one female in berry, Mewstone Ledge, 7.7.09 ; 3 males, 3 females (one in berry), Mewstone Ledge, Stoke Pt. Gds., 19.7.09 ; 3 specimens, Mewstone Ledge, 15.3.10 ; several specimens, one female with Sacculina, Mewstone Ledge, 8.6.10 (A.J.S.) : Millbay Pit, 29.8.05 (L.R.C.) : one specimen at each of 2 positions 28-49 m. S.W. of Eddystone, 47-51 fms. (Crawshay, 1912, p. 359) : one female in berry, July 1926, young hatched (M.V.L.) : 24.4.29, female in berry young hatched, 27.5.29 (M.V.L.)

POLYBIUS HENSLOWI Leach [*Bell*, 1853, p. 116]

The male is not uncommon at times on the shrimp-trawling grounds, particularly in Cawsand B., also swimming near the surface at the deeper water stations, but the female has only twice been recorded at the Laboratory (S.P.) : a dozen males Whitsand B., 10.8.10 (A.J.S.) : 2 females, 10 males Whitsand B., $2\frac{1}{2}$ -4 fms., 7.7.11 (F.J.Br.) : one female, Rame mud, July, 1927 (M.V.L.)

Females in berry : Sept. (R.A.T., W.I.B.) : hatched : Sept. (R.A.T.)

CARCINUS MAENAS (Pennant) [*Bell*, 1853, p. 76]

Common everywhere, tide-marks, 3 fms. (R.A.T., S.P.) : Millbay Ch., occasionally (R.A.T.) : common in Tamar, taken up to $\frac{3}{4}$ m. above Calstock ; common in Lynher, taken up to within one m. of Tideford, nr. Tredinnick, June-Oct. 1928 (E.F.)

Females in berry, Jan.-Apr. (w.g., R.A.T.) : May-Aug. (w.g.) : Nov. (R.A.T.) : Dec. (w.g., R.A.T.). Zoea stage, Feb.-Apr. (R.G.) : July (R.A.T.) : berried females from Dec. to Nov., chiefly Feb.-Mar. ; larvae in plankton throughout the year, chiefly spring (M.V.L.)

SALCOMBE. Moderately common on the sand, mud and *Zostera* banks in Salcombe Harbour ; abundant in some localities, Ditch End *Zostera* bank especially (Allen & Todd, 1900, p. 200)

PORTUNUS BIGUTTATUS (Risso) [*Heller*, 1863, p. 94]

Drake's I., occasional specimens, burrowing in fine gravel (w.g., R.A.T.) : 2 specimens, male and female, sand patch, N.E. corner of Drake's I., 21.3.05 ; Cawsand B., 3.10.06 (L.R.C.)

Females in berry, Aug. (R.A.T.) : megalopa, Aug. (R.G.)

PORTUNUS LATIPES (Pennant) [*Bell*, 1853, p. 85, as *P. variegatus* ; *Heller*, 1863, p. 93, as *Platyonichus*]

Whitsand Bay shore, 18 and 19.9.06, about 30 specimens, various sizes (A.J.S.) : frequent below low water and trawled, Whitsand Bay (M.V.L.)

Family Pirimelidae**PIRIMELA DENTICULATA** (Montagu) [*Heller*, 1863, p. 64]

Plymouth 4-30 fms. (C.S.B.) : Drake's I., not uncommon on clean coarse shelly gravel (w.g., S.P.) : Rum B. (R.A.T.) : Yealm R. (T.V.H.) : Stoke

Pt. Gds. (s.p.): Drake's I., between tide-marks, under a stone, 22.10.06 (L.R.C.): Bovisand Beach between tide-marks, 18.8.10 (J.H.O.)

Breeding: Feb., Apr. (R.A.T.): larvae which are presumably this species in plankton in summer and autumn (M.V.L.)

Family **Canceridae**

CANCER PAGURUS L. [*Bell*, 1853, p. 59]

Small specimens common among stones between tide-marks on all rocky shores; large specimens seldom seen above low-water mark (s.p.): common in the trawl in Sound and outside (M.V.L.)

Breeding: Jan. (R.A.T.): Feb., onwards (w.g.): Mar.-July; Dec. (R.A.T.): a female in berry from Plymouth Sd. in crab pot, 27.2.25 measured under 13 cm. across carapace (A.J.S.): one large specimen with eggs, 23 m., and two specimens 46 m. S.W. of Eddystone, 46-50 fms. (Crawshay, 1912, p. 358): berried females in spring; larvae in plankton Apr.-Aug. (M.V.L.)

ATELECYCLUS SEPTEMDENTATUS (Montagu) [*Bell*, 1853, p. 153]

Plymouth (A.M.N.): moderately common 15-30 fms. (R.A.T.): local, but common where it occurs, generally on muddy gravel (s.p.): Rame-Eddystone and Mewstone Gds. (R.A.T., s.p.): Eddystone Gds., abundant on muddy gravel about 1 m. E. of Eddystone, on gravelly sand about 3 m. W. of Eddystone, and occasionally at other stations (E.J.A.): at 15 positions 7-30 m. S.W. of Eddystone, 40-47 fms. (Crawshay, 1912, p. 360)

Breeding: Apr.-July (R.A.T.): berried females Feb.-Apr.; rarely in summer and autumn; larvae in plankton Mar.-June (M.V.L.)

Family **Corystidae**

CORYSTES CASSIVELAUNUS (Pennant) [*Bell*, 1853, p. 159]

Plymouth (A.M.N.): generally distributed on clean, fine sand, 15-30 fms.; Cawsand B., not uncommon (R.A.T., s.p.): 29 specimens, all males, 10.7.19 (J.H.O.): clean sand, Whitsand B., Bigbury B., W. Channel (E.F.)

Females in berry: May-July; Nov. (R.A.T.): Zoea stage, Feb.-May (R.G.): Megalopa stage, Apr. (R.G.): swarms in May, 1925 (F.S.R.): berried females, April, July; larvae in plankton, Mar.-June, rarely later; 6 berried females Cawsand B., Aug. 1926, 72 berried females outside Sound the day after (M.V.L.)

Family **Thiidae**

THIA POLITA Leach [*Bell*, 1853, p. 365]

One female dredged Revelstoke Pt. N.N.E. 2 m. 1926; one male dredged Eddystone Gds., 29.3.27; larvae in plankton in late summer, fairly common (M.V.L.)

Family **Xanthidae**

XANTHO INCISUS Leach [*Bell*, 1853, p. 51, as *X. florida*]

Plymouth (A.M.N.): common between tide-marks on all rocky shores (s.p.)

Breeding : Apr. (R.A.T.) : May (W.G.) : June (W.G., R.A.T.) : berried females spring and early summer ; zoeae occasionally in plankton ; reared from egg to crab, June-Aug. 1927 (M.V.L.)

XANTHO HYDROPHILUS (Herbst) [*Bell*, 1853, p. 54]

Plymouth (A.M.N.) : between tide-marks on all rocky shores not uncommon under stones, etc. (S.P.) : much rarer than *X. incisus*, occurring in the same localities, but much further down so that it can only be collected at extremely low tides (M.V.L.)

Breeding : Mar. (R.A.T.) : May (W.G., S.P.) : June (W.G.) : berried crabs in spring. Eggs hatched June, 1927 (M.V.L.)

XANTHO TUBERCULATUS Couch [*Bell*, 1853, p. 359]

One specimen at 9 positions, and two at one position 21-48 m. S.W. of Eddystone, 44-50 fms. or over, 3 ovigerous females (Crawshay, 1912, p. 358) : said by Bate to be frequent at Plymouth from 4-45 fms. (A.M.N. and T.S.)

PILUMNUS HIRTELLUS (L.) [*Bell*, 1853, p. 68]

Not uncommon on all rocky shores under stones and in crevices, L.W.-5 fms. (S.P.) : common in *Lepralia foliacea* ; Mewstone Ledge ; etc. (R.A.T., S.P.) : Mewstone Ledge, 21.7.20, female in berry (R.W.)

Breeding : Mar. (S.P.) : Apr. (W.G., R.A.T.) : May-June (W.G.) : July (S.P.) : berried crabs in spring and summer, chiefly spring ; larvae abundant in plankton throughout the summer ; reared from egg to megalopa, Aug.-Sept. 1926 (M.V.L.)

SALCOMBE. One only taken in dredgings from between Snape's Pt. and the Salstone (Allen & Todd, 1900, p. 199)

Family Gonoplacidae

GONOPLAX RHOMBOIDES (L.) [*Bell*, 1853, p. 130, as *G. angulata*]

Plymouth (A.M.N.) : Cawsand B., rare ; Jennycliff B., one specimen (S.P.) : occasionally in 15-30 fms. ; Rame-Eddystone Gds. ; Mewstone Gds. (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : Looe-Eddystone Gds., 30.4.14, with larvae nearly hatching (J.H.O.) : Rame Hd. bearing N.E., 2-2½ m. ; N.E. by N. 2 m., very small specimens (A.J.S.) : Rame Mud (E.F.)

Breeding : hatched out in June (R.A.T., M.V.L.) : berried females, April, July, 1928 ; 20.3.29, Rame Mud (J.H.O., M.V.L.) : larvae in plankton in late summer and early autumn ; hatched out Sept. 1928 (M.V.L.)

SALCOMBE (G.M. *vide* A.M.N. and T.S.) : E. side above ferry, on side of *Zostera* bank exposed low water, 13 ft. tide, in burrows of soft mud (N.J.B.)

Family Pinnotheridae

PINNOTHERES PISUM (Pennant) [*Bell*, 1853, p. 121]

In Saltash mussels (G.S.B.) : Mewstone 'Amphioxus' Gd., in the mantle cavity of *Cardium norvegicum* and of *Glycymeris* (W.G., R.A.T.) : common in mussels, *Mytilus edulis* above Steer Pt. ; Saltash district (J.H.O., A.J.S.) : one in *Mytilus* from Plymouth Pier, 9.12.27 (D.A.) ; one in *Ascidia mentula*, Mewstone Gds., March 1910 (G.H.G.) : under Laira Bridge in *Mytilus*, 22.2.13 (J.H.O.)

Breeding : July-Aug. (R.A.T.) : berried females in late spring and early summer, rarely in autumn ; Zoeae occasionally in the plankton (M.V.L.) : females in berry, R. Yealm, 14.8.27, 21.7.28, 3.8.28 ; Promenade Pier, 11.9.28 (D.A.)

SALCOMBE. One specimen from Modiolus, 6.9.28 (D.A.)

PINNOTHERES (sp ?) VETERUM Bosc [*Bell*, 1853, p. 126]

Occasionally found in Ascidians, July, 1925 ; one in *Ascidia mentula*, Plymouth district (M.V.L.) : probably this species from *Mytilus edulis*, from near junction of Tamar and Tavy, 20.10.27 ; from *Ascidia mentula*, Mewstone region, male, 1.8.28, 13.9.28 ; female, solitary, male, solitary, 14.9.28 ; 2 adult females separately, 18.10.28 ; female and male, female in berry, 11.7.25 (D.A.) : male, 18.8.27 ; young female April, 1927 ; one in branchial chamber of *Ascidella aspersa*, Rame-Eddystone Gd., 27.6.29 (D.A.)

Breeding : Zoeae in plankton in late summer and early autumn (M.V.L.) : a female from branchial cavity of *Ascidia mentula* from Revelstoke Pt. spawned in Laboratory, 18.5.29 (D.A.)

SALCOMBE. In Pinna (G.M. *vide* A.M.N. and T.S.)

Family Leucosiidae

EBALIA TUBEROSA (Pennant) [*Bell*, 1853, p. 141, as *E. Pennanti*]

Plymouth (A.M.N.) : Millbay Ch. (T.V.H.) : not uncommon, 20-30 fms. ; Mewstone Gds., Rame-Eddystone Gds. ; etc. (R.A.T.) : Eddystone Gds., together with *E. tumefacta* (E.J.A.) : from 20 positions 1-46 m. S.W. of Eddystone, 40-50 fms. (Crawshay, 1912, p. 356) : Rame Mud (E.F.) : the commonest *Ebalia* in the district, occurring in sand, both inside and outside Sound, frequently dredged (M.V.L.)

Breeding : females in berry, May-June (R.A.T.) : from Jan. to late summer or autumn ; larvae in plankton almost throughout the year, chiefly in spring and summer, generally near the bottom (M.V.L.)

SALCOMBE (A.M.N.) : in all hauls of the dredge between Snape's Pt. and the Salstone ; a few only between Snape's Pt. and the mouth of the Harbour (Allen & Todd, 1900, p. 200)

EBALIA CRANCHI Leach [*Bell*, 1853, p. 148]

Plymouth (A.M.N.) : Cawsand B., one specimen ; Whitsand B. one specimen (T.V.H.) : Eddystone Gds., on sandy gravel, E. of Hand Deep (E.J.A.) : from 2 positions 15-23 m. S.W. of Eddystone, 40-45 fms. (Crawshay, 1912, p. 355)

Breeding : females in berry in spring and summer ; larvae in plankton summer and autumn (M.V.L.)

EBALIA TUMEFACATA (Montagu) [*Bell*, 1853, p. 145, as *E. bryeri*]

Off Plymouth (A.M.N.) : Duke Rk., single specimen (T.V.H.) : Eddystone Gds., abundant on coarse sandy gravel W. of Eddystone, constantly present but less abundant on clean shell-gravel grounds (E.J.A.) : one specimen each at two positions, 23-46 m. S.W. of Eddystone, 45-50 fms. (Crawshay, 1912, p. 355) : Queen's Gds., female, 24.3.06 (L.R.C.)

Family **Malidae****MAIA*** SQUINADO (Herbst) [*Bell*, 1853, p. 39]

Moderately common in Sound, among rocks and on sand with *Zostera*, etc., 5 fms. (R.A.T.): common amongst the rocks outside Sound (E.J.A.): Cawsand B., not uncommon (R.A.T., S.P.): Mewstone 'Echinoderm' Gd.; Rame-Eddystone Gds.; occasionally (R.A.T.): Eddystone Gds. (E.J.A.): Yealm R., moderately common (R.A.T.): 7 specimens, Cawsand B., 28.4.09; two Asia Sh., 22.4.09; eight, Rame-Eddystone, 30.4.09 (A.J.S.): very common on the trawling grounds, both inside and outside Sound (M.V.L.)

Breeding: Mar.-Apr. (R.A.T.): May (S.P.): June (R.A.T.): females in berry spring and summer, chiefly summer; larvae in plankton abundant in late summer (M.V.L.)

SALCOMBE. One only was taken in the dredge between Snape's Pt. and the mouth of the Harbour; it is however very commonly taken when working the tuck-net on the *Zostera* banks and mud flats (Allen & Todd, 1900, p. 199)

EURYNOME ASPERA (Pennant) [*Bell*, 1853, p. 46]

Fairly common 10-30 fms., on gravel and sand (S.P.): Millbay Ch. and Pit, not uncommon; Asia Sh.; Queen's Gd. (R.A.T., S.P.): Duke Rk.; the Breakwater, between tide-marks, one specimen; Yealm R., occasionally in dredging (R.A.T.): Rame-Eddystone Gds.; Mewstone 'Amphioxus' Gd. (R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): Stoke Pt. Gds. (S.P.): common in crevices of stones and polyzoa in the Sound and outside (M.V.L.): from 19 positions 8-39 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 357): Asia Sh., 3.2.20, female in berry (J.H.O.)

Breeding: Jan.-Feb. (W.G., R.A.T.): Mar.-Apr. (W.G., R.A.T., S.P.):

May-June (S.P.): July (R.A.T., S.P.): Sept. (S.P.): females in berry, spring and summer; larvae in plankton spring and summer, more rarely in autumn (M.V.L.)

SALCOMBE. Common in dredgings between Snape's Pt. and the Salstone (Allen & Todd, 1900, p. 199)

PISA BIACULEATA (Montagu) [*Bell*, 1853, p. 27, as *P. gibbsi*]

Mewstone Ledge, single specimen; Yealm R., single specimen (R.A.T.): one with *Sacculina* 20 m. S.W. of Eddystone and one female in berry, 39 m. S.W. of Eddystone, 42-49 fms. or over (Crawshay, 1912, p. 357)

Breeding: May (R.A.T.): female in berry, July, 1926; female in berry 2½ m. S. of Mewstone trawl, 5.8.30; eggs hatched 17.8.30; reared to second zoea (M.V.L.)

HYAS COARCTATUS Leach [*Bell*, 1853, p. 35]

Off Plymouth (A.M.N.): occasionally in 15-30 fms.; Rame-Eddystone Gds.; etc. (R.A.T.): Eddystone Gds., occasionally on the fine sand grounds (E.J.A.): Cawsand B., fairly common (A.J.S.): one specimen at each of five positions 7-40 m. S.W. of Eddystone, 40-52 fms. (one in berry) (Crawshay, 1912, p. 357): fairly common both inside and outside Sound, on the trawling and dredging grounds (M.V.L.)

*Norman and Scott think that Stebbing's name, *Mamaia*, should be used for this genus (Norman and Scott, 1906, p. 6).

Breeding : Mar.-Apr. ; July (R.A.T.) : Aug. (W.G.) : Dec. (R.A.T.) : larvae in plankton chiefly in early spring (M.V.L.)

HYAS ARANEUS (L.) [Bell, 1853, p. 31]

Yealm R. (E.J.A., E.W.L.H., R.A.T., T.V.H.) : the Mewstone (T.V.H.) : apparently not seen in the last 20 years (M.V.L.)

INACHUS DORSETTENSIS (Pennant) [Bell, 1853, p. 13]

Queen's Gd., occasionally ; common in 15-30 fms. outside Sound ; Mewstone Gds. ; Rame-Eddystone Gds. ; etc. (R.A.T.) : Eddystone Gds. (E.J.A.) : Yealm R., not uncommon (R.A.T.) : from one to several specimens at 24 stations, 7-38 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 357) : the commonest of all the Inachinae ; very common in the district both inside and outside Sound, chiefly outside (M.V.L.)

Breeding : females in berry, Jan.-Apr. (R.A.T.) : June-Aug. (R.A.T., S.P.) : Sept. (S.P.) : Zoea stage, Mar., July (R.G.) : females in berry throughout the year, larvae in plankton in any month, perhaps specially abundant in autumn ; reared from egg to crab, June-July (M.V.L.)

SALCOMBE. In all hauls of the dredge, excepting those of the " Bag " (Allen & Todd, 1900, p. 199)

INACHUS DORYNCHUS Leach [Bell, 1853, p. 16]

Much rarer than the last, Plymouth (A.M.N.) : Millbay C., occasionally ; Duke Rk. ; Yealm R., not uncommon (R.A.T.) : often in this district confused with *I. leptochirus* ; inhabiting inshore waters, common (M.V.L.)

Breeding : female in berry, Mar. (R.A.T.) : throughout the year, larvae in plankton with other Inachus species ; reared from egg to megalopa (M.V.L.)

SALCOMBE (A.M.N.) : only found on the west and south-east shores of the Salstone, between tide-marks (Allen & Todd, 1900, p. 199)

INACHUS LEPTOCHIRUS Leach [Bell, 1853, p. 18]

Two specimens at 2 positions and one at 3 positions, 30-40 m. S.W. of Eddystone, 47-49 fms. (Crawshay, 1912, p. 357) : common in the deeper-water outside Sound ; apparently has been much confused with *I. dorynchus*, but usually inhabits deeper water (M.V.L.)

Breeding : females in berry throughout the year ; larvae in plankton with other Inachus species (M.V.L.)

MACROPODIA LONGIROSTRIS (Fabricius) [Bell, 1853, p. 6, as *Stenorynchus tenuirostris*]

Queen's Gd., not uncommon ; Cawsand B., occasionally ; moderately common outside Sound, 15-30 fms. ; Mewstone Gds. ; Rame-Eddystone Gds. ; etc. (R.A.T.) : Eddystone Gds., especially abundant where the prevailing hydroid is *Sertularella gayi* (E.J.A.) : Yealm R., occasionally (R.A.T.) : at 15 positions 7-38 m. S.W. of Eddystone, 40-53 fms., one with *Sacculina* (Crawshay, 1912, p. 356) : the commonest Macropodia species ; occurs inside and outside Sound on the usual trawling gds. (M.V.L.)

Breeding : Feb.-Apr. (R.A.T.) : May (W.G.) : July-Aug. (R.A.T.) : females in berry and larvae in plankton throughout the year ; reared from egg to megalopa (M.V.L.)

SALCOMBE. A few were dredged between Snape's Pt. and the mouth of the Harbour (Allen & Todd, 1900, p. 199, as *Stenorynchus*)

MACROPODIA ROSTRATUS (L.) [*Bell*, 1853, p. 2, as *Stenorynchus phalangium*]

Occasionally in dredgings from Sound; Cawsand B., moderately common; Yealm R., not uncommon (R.A.T.): from one to five specimens at 8 positions, 7-31 m. S.W. of Eddystone, 40-47 fms., one female in berry (Crawshay, 1912, p. 357): common in the shallower waters of the Sound, often in dredgings covered with red or green weed (M.V.L.)

Breeding: May (W.G.): Aug. (R.A.T.): females in berry and larvae in plankton throughout the year, especially spring and summer; larvae reared from egg to megalopa (M.V.L.)

SALCOMBE. Present in most hauls of the dredge between Salstone and the mouth of the Harbour, excepting those taken in the "Bag" (Allen & Todd, 1900, p. 199)

MACROPODIA EGYPTIA (H. Milne-Edwards) [1834, I, p. 280, as *Stenorynchus egyptius*]

Not uncommon on weedy ground (W.G.): very rare, 15-30 fms. (R.A.T.): a single specimen at two positions 28-31 m. S.W. of Eddystone, 43-45 fms. (Crawshay, 1912, p. 356): not so common as the other two species; in shallow water in Sound, in same localities as *M. rostratus*, usually also dredged in red or green weed (M.V.L.)

Breeding: females in berry seem to occur at any time of year, and larvae in plankton; larva reared from egg to second (last) zoea (M.V.L.)

ACHAEUS CRANCHI Leach [*Bell*, 1853, p. 10]

Plymouth (A.M.N.): Queen's Gd.; Duke Rk. (T.V.H.): Yealm R. (R.A.T.)

Breeding: Aug. (R.A.T.): Sept. (S.P.): Mar. (O.D.H.)

SALCOMBE (A.M.N.)

Class **ARACHNIDA**

Sub-Class **PYCNOGONIDA**

Family **Pycnogonidae**

PYCNOGONUM LITTORALE (Stroem) [*Sars*, 1891, p. 7]

Yealm R.; Breakwater (T.V.H.): Breakwater, young specimen parasitic on young anemone, 23.10.07 (C.L.W.): 7 specimens, mainly on *Alcyonium digitatum*, Bolt Tail bearing N.E., 7-8 miles, otter trawl, 29.6.14 (A.J.S.)

Family **Phoxichilidae**

ENDEIS SPINOSUS (Montagu) [*Hoek*, 1881, p. 518, as *Phoxichilus*]

Queen's Gd., occasionally (R.A.T.): Millbay Pit, several specimens; Yealm R. (T.V.H.): one specimen, 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 360): Rum B., 29.11.15; in tow-nettings outside Breakwater, July 1915; Winter Sh., 11.11.15; Cattewater, Aug. 1915; young on *Obelia* hydroids, Batten Beach, Aug. 1915; young with chelae on 4th pair of legs not wholly developed, on medusae, in tow-nettings outside Breakwater (M.V.L.)

SALCOMBE. One taken in the cheese-cloth trawl on the *Zostera* under the Marine Hotel, and two between Ferry House and Millbay (Allen & Todd, 1900, p. 204)

Family **Phoxichilidiidae**

ANAPLODACTYLUS PETIOLATUS (Kröyer) [Sars, 1891, p. 25]

Asia Sh. (A.M.N., S.P.) : Winter Sh., Aug. 1915 ; very young stages in manubrium of *Obelia*, frequent ; older stages on *Obelia medusae* ; also in and on *Amphinema dinema*, *Phialidium hemisphericum*, *Cosmetira pilosella* (M.V.L.)

Family **Pallenidae**

PALLENE BREVIROSTRIS Johnston [Hoek, 1881, p. 511]

Asia Sh. (S.P.) : Asia Sh., 10.6.13, one male carrying eggs, young larvae just hatching (W.O.R.K.) : one specimen, 46 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 360) : Cattewater, Aug. 1915 ; tow-nettings, Knap B., Oct. 1915 ; Winter Sh., 11.11.15, one male carrying eggs (M.V.L.)

Family **Nymphonidae**

NYMPHON GALLICUM Hoek [Hoek, 1881, p. 501]

Occasionally between tide-marks in Sound and in 2-5 fms., in Cawsand B. (R.A.T.)

Males carrying ova in Feb. (R.A.T.)

NYMPHON GRACILE Leach [Hoek, 1881, p. 498]

Duke Rk., rare ; Yealm R. (T.V.H.) : a male carrying ova in May (R.A.T.) : Cattewater, Aug. 1915 ; Rum B., Aug. 1915, low spring tide under stones ; Winter Sh., 11.11.15 ; the commonest shore pycnogon (M.V.L.)

SALCOMBE. Two dredged in the Harbour (Allen & Todd, 1900, p. 204)

NYMPHON RUBRUM Hodge [Sars, 1891, p. 58]

Asia Sh., one specimen (A.M.N.)

Family **Ammotheidae**

AMMOTHEA ECHINATA (Hodge) [Hoek, 1881, p. 508]

Not uncommon, Millbay Ch. and Pit ; Asia Sh., Queen's Gd., Yealm R., Rum B., Duke Rk., etc. (R.A.T.)

SALCOMBE. Not uncommon in dredgings from the Harbour (Allen & Todd, 1900, p. 204)

Breeding : Aug. (W.G.) : Duke Rk., 14.9.11, dredge, many specimens carrying eggs (J.H.O.) : one to three specimens at five positions 30-46 m. S.W. of Eddystone, 47-50 fms. (Crawshay, 1912, p. 360) : Winter Sh., abundant, 11.11.15 (M.V.L.)

Class **INSECTA**

Group **APTERYGOTA**

Order **COLLEMBOLA**

LIPURA MARITIMA Guérin [Lubbock, 1875, p. 193] = Anurida

Rock-pools below Laboratory, July-Aug., very plentiful, floating on water (J.H.O.)

Order THYSANURA

PETROBIUS MARITIMUS Leach [*Lubbock*, 1875, p. 236, as *Machilis*]

Common in rock crevices above high-water mark, Drake's I. and Sound, April 1906 (C.G.H.) : rocks just above high-water mark at Bovisand and rocks below lab., Aug., very plentiful and easily captured on sunny days (J.H.O.) : on rocky shore, R. Lynher, up to Port Eliot and to Warren Pt., above high-water mark ; R. Tamar to Neille Pt., June-Oct. 1928 (E.P.)

Group EXOPTERYGOTA

Order HEMIPTERA

Family **Aepophilidae**

AEOPHILUS BONNAIREI Sig. [*Saunders*, 1892]

Church Reef, Wembury B., March 1930 (J.S.C.)

Group ENDOPTERYGOTA

Order NEUROPTERA

Family **Leptoceridae**

LEPTOCERUS ANNULICORNIS Steph. [*Rousseau*, 1921, p. 613]

In moss on top of tidal region, Weirhead, R. Tamar, 11.7.28 (E.P.)

Order DIPTERA

(Taken from Colonel J. W. Yerbury's "Seashore Diptera" *Journ. Mar. Biol. Assoc.*, Vol. XII, 1910, p. 141)

Family **Chironomidae**

CLUNIO MARINUS Hal. [*Chevre*, 1894 ; *Carpenter* 1901, p. 197]

Between Penlee Pt. and Rame Hd., salt water pools on the rocks (J.W.Y.)

Family **Borboridae**

LIMOSINA LIMOSA Flin. [*Wingate*, 1906, pp. 378, 380]

A few under seaweed in the little Picklecombe Bay (J.W.Y.)

Family **Anthomyidae**

FUCELLIA MARITIMA Hal. [*Carpenter*, 1901, p. 195]

Stonehouse, in front of Winter Villa, more or less dry rocks, common everywhere ; perhaps has a preference for wet rocks and sandy shores (J.W.Y.)

FUCELLIA FUCURUM Flin. [*Carpenter*, 1901, p. 195]

Sand hills, Bantham, and in heaps of dead seaweed on the shore (J.W.Y.)

Family **Mydaeidae**

SPILOGASTER PROTUBERANS Zett. [*Wingate*, 1906, p. 245, 255]

Bantham, on the sands between the plants of marram grass, rare (J.W.Y.)

Family **Phycodromidae**ORYGMA LUCTUOSUM Mg. [*Carpenter*, 1901, p. 195]

Common everywhere, but appears to prefer the dry seaweed and other marine rejectamenta lying along the high-water mark of muddy creeks, such as Millbrook and St. John's Creek (J.W.Y.)

MALACOMYIA SCIOMYZINA Hal.=Phycodroma [*Wingate*, 1906, p. 308]

A few under seaweed in the little Picklecombe Bay, never common (J.W.Y.)

FUCOMYIA FRIGIDA Fln. [*Elwes*, 1915]

In great numbers in the Picklecombe Bay : common all round the coast, under dead seaweed (J.W.Y.)

Family **Sciomyzidae**

OEDOPAREA BUCCATA Fln.

Bantham, on the marram grass (J.W.Y.)

Family **Agromyzidae**OCHTHIPHILA FLAVIPALPIS Hal. [*Wingate*, 1906, p. 375]

Bantham, on the marram grass (J.W.Y.)

Family **Therevidae**THEREVA ANNULATA Feb. [*Wingate*, 1906, p. 108]

Sand-hills, Bantham (J.W.Y.)

Family **Tabanidae**HAEMATOPOTA ITALICA Mg. [*Verrall*, 1909, V.]

Sheviok wood near the water's edge of the Lynher Creek salt marsh (J.W.Y.)

Family **Dolichopodidae**APHROSYLUS RAPTOR Hal. [*Carpenter*, 1901, p. 196]

Mount Batten, Rum B., Bovisand, fairly common, wet rocks covered with growing seaweed, big rocks ; it seems possible that this fly may spend some portion of its perfect state under water, as at East Prawle they were flying at low water about the seaweed covered rocks quite 100 yds. from the shore (J.W.Y.)

APHROSYLUS FEROX Hal. [*Carpenter*, 1901, p. 196]

Mount Batten, Rum Bay, common on small rocks (J.W.Y.)

Family **Ephyridae**HECAMEDE ALBICANS Mg. [*Wingate*, 1906, p. 347]

Below the Whitsand B. Hotel, on small pebbles in the bed of a stream running across the beach (J.W.Y.)

Family **Cordyluridae**SCATOPHAGA LITOREA Fln. [*Wingate*, 1906, pp. 296, 304]

Common all round the coast, under dead seaweed both on rocky and sandy shores (J.W.Y.)

SCATOPHAGA VILLIPES Tett. [*Wingate*, 1906, pp. 296, 304]

On one occasion in fair numbers under seaweed in the little bay near the Picklecombe Lodge at Mt. Edgcumbe Park, under dead seaweed on both rocky and sandy shores (J.W.Y.)

CERATINOSTOMA OSTIURUM Hal.=*Scatophaga oceana* Meg. [*Wingate*, 1906, pp. 296, 302]

Stonehouse, in front of the Marine Villa, under dead seaweed both on rocky and sandy shores (J.W.Y.)

Family **Syrphidae**

ERISTALIS AENEUS Scop. [*Verrall*, 1901, VIII, p. 501]

Fairly common on thrift blossom, in early spring, on the rocks between Bovisand and Wembury ; probably breeds in the rocky pools and fissures in the rocks (J.W.Y.)

ERISTALIS SEPULCHRALIS L. [*Verrall*, 1901, VIII, p. 498]

In early spring with the last species, but wanders much further inland (J.W.Y.)

Family **Empididae**

CHERSODROMIA HIRTA Walk. [*Wingate*, 1906, pp. 110, 121]

Under loose seaweed, and also running about on the wet sand, Cawsand B., common (J.W.Y.)

CHERSODROMIA CURSITANS Zett. [*Wingate*, 1906, pp. 110, 124]

Cawsand B., under wet seaweed on wet sand, common (J.W.Y.)

Order COLEOPTERA

(Chiefly from Mr. J. H. Keys' "A List of the Maritime, Sub-maritime and Coast-frequenting Coleoptera of South Devon and South Cornwall, with especial reference to the Plymouth District." *Journ. Mar. Biol. Assoc.*, N.S., Vol. XI, p. 497, 1918)

Sub-Order *Geodephaga*

PANAGAEUS BIPUSTULATUS Fab. [*Fowler*, 1887, I, p. 28, fig. Pl. 5]

Coastal ; Whitsand B., May 1890, one under stone on the slopes ; Tregantle, March 1905, one (J.H.K.) : Penlee Pt., May 1902, one running on the pathway (E. E. Lowe, per J.H.K.) : Bovisand, at roots of grass, March 1920, one (J.H.K.)

CHLAENIUS VESTITUS Payk. [*Fowler*, 1887, I, p. 33, fig. Pl. 6]

Coastal ; Wembury Beach, June 1898, several by the rivulet ; Lipson Marsh, April, 1900 ; Compton fields, 1901 (J.H.K.)

BROSCUS CEPHALOTES L. [*Fowler*, 1887, I, p. 27, fig. Pl. 5]

Coastal ; Whitsand B. (J.H.K.)

OCYS (BEMBIDIUM) HARPALOIDES Serv. (*rufescens* Guér.) [*Fowler*, 1887, I, p. 103, fig. plate 16]

Chelson Meadow, May 1924 ; common in many places along the S. coast of Devon and Cornwall (G.C.C.)

BEMBIDIUM CONCINNUM Steph. [Fowler, 1887, I, p. 115, fig. Pl. 18]

Coastal ; estuary of the Yealm, Aug. 1900 ; several examples on the shore, Newton Ferrers, June 1916 ; in great abundance in the bed of the river near the mouth of the Tavy, 1917 (J.H.K.)

BEMBIDIUM PALLIDIPENNE Ill. [Fowler, 1887, I, p. 117, fig. Plate 18]

Thurlestone (N.J.)

BEMBIDIUM VARIUM Ol. [Fowler, 1887, I, p. 120, fig. Pl. 18]

Sub-maritime ; Downterry, Aug. 1900, Lipson Marsh, May 1910 (J.H.K.)

LIMNAEUM NIGROPICEUM Marsh [Fowler, 1887, I, p. 99, fig. Pl. 16]

Sub-maritime ; rare, Batten, Dec. 1888, one ; Aug. 1889, one ; Aug. 1890, one ; Sept. 1890, two, deep in the shingle ; Rame Hd., Apr. 1902, three (J.H.K.)

CILLENUS LATERALIS Sam. [Fowler, 1887, I, p. 99, fig. Pl. 16]

Maritime ; Millbrook Creek and mouth of Yealm, in numbers ; Wivelscombe Creek and Bere Ferrers (J.H.K.)

TACHYS PARVULUS Dej. [Fowler, 1887, I, p. 98]

Sub-maritime ; four specimens, in shingle just below high water, about half a mile beyond Bovisand, June 1905 (J.H.K.)

AEPUS MARINUS Ström [Fowler, 1887, I, p. 124, fig. Pl. 19]

Maritime ; generally distributed all along the coast from the Yealm to Cremyll ; also found in the estuaries at Wivelscombe, Bere Ferrers, etc. ; some seasons abundant ; at Batten, Oct. 1909, quite 200 under one boulder, 70 were captured ; once only in numbers in the roll of rejected seaweed at high-water mark at Millbrook Creek, their usual habitat being under stones embedded an inch or two in clayey shores. Occur practically all the year round and their larvae may often be taken with them ; in 1888 at Tinside and in coves between the rocks under the Citadel (J.H.K.)

AEPUS ROBINI Laboulb. [Fowler, 1887, I, p. 125, fig. Pl. 19]

Maritime ; all along the coast and may be taken with *Aë. marinus* ; not found in estuaries ; in 1889 and 1890 more common than *marinus* ; natural habitat of *robini* seems to be much nearer the laminarian zone than that of *marinus* (J.H.K.) : Rum B. in crevices of rocks with *Naesa bidentata*, March 1911 (K.H.B. identified by E.O.W., Brit. Mus.)

PERILEPTUS AREOLATUS Creutz [Fowler, 1887, I, p. 124, fig. Pl. 19]

Coastal ; two specimens, Stoke B., 10.6.17, in shingle by a rill of fresh water ; July 15th, scarce at the rill but in numbers nearer sea where shingle ended and rocks began (J.H.K.)

TRECHUS FULVUS Dej. (*lapidosus* Daws) [Fowler, 1887, I, p. 127, fig. Pl. 19]

Sub-maritime ; three specimens on beach at Rame Hd., Apr. 1902 ; one, Bovisand, July 1905 (J.H.K.)

POGONUS CHALCEUS Marsh [Fowler, 1887, I, p. 131, fig. Pl. 20]

Sub-maritime ; mouth of Erme, Sept. 1906 ; Wivelscombe Creek, June 1915 ; Budshead Creek, Tamerton, June 1916 (J.H.K.)

HARPALUS TENEBROSUS Dej. [*Fowler*, 1887, I, p. 50, fig. Pl. 8]

Coastal ; rare, first discovered at Whitsand Bay by Mr. J. J. Walker in 1875 ; may still be obtained there in spring and autumn ; Batten, one male, Apr. 1904 (J.J.W., J.H.K.)

HARPALUS ATTENUATUS Steph. [*Fowler*, 1887, I, p. 49, fig. Pl. 8]

Coastal ; one specimen, Whitsands, June 1902 ; abundant following August ; one only, Millbrook Creek, July 1902 (J.H.K.)

DICHIOTRICHUS PUBESCENS Payk. [*Fowler*, 1887, I, p. 55, fig. Pl. 9]

Sub-maritime ; nr. mouth of Erme, Sept. 1906, in abundance ; Cargreen, Oct. 1912, one only ; Wivelscombe Creek, June 1915 several (J.H.K.)

AMARA OVATA F. [*Fowler*, 1887, I, p. 15, fig. Pl. 12]

Coastal ; Whitsand B., not rare ; Downterry (J.H.K.)

Ab. **ADAMANTINA** Kol. [*Ganglbauer*, 1892-95, Vol. I, p. 316]

Tregantle, one specimen, Aug. 1902 ; apparently the only British record (J.H.K.)

AMARA LUCIDA Duft. [*Fowler*, 1887, I, p. 77]

Coastal ; Whitsand B., frequent (J.H.K.)

ANCHOMENUS ALBIPES F. [*Fowler*, 1887, I, p. 88, fig. Pl. 14]

Often in numbers, in wet places around the coast and inland ; Batten, Apr. 1904 (G.C.C.)

LIONYCHUS QUADRILLUM Duft. [*Fowler*, 1887, I, p. 146, fig. Pl. 22]

Sub-maritime ; Downterry, May, 1915, darting about amongst the shingle at the foot of the sloping slaty rocks at high-tide mark ; under lamellae of slate rock below high-tide mark, Aug. 1916 (J.H.K.)

Ab. **BIPUNCTATUS** Heer. [*Ganglbauer*, 1892-95, Vol. I, p. 401]

Downterry (J.H.K.)

MICROLESTES (BLECHRUS) MAURUS Sturm. [*Fowler*, 1887, I, p. 144, fig. Pl. 22]

Coastal ; Bovisand, Wembury, Whitsands (J.H.K.)

Sub-Order *Hydradephaga*

COELAMBUS INAEQUALIS F. [*Fowler*, 1887, I, p. 168, fig. Pl. 24]

Coastal ; common, Lipson Marsh, Chelson Meadows, Downterry (J.H.K.)

AGABUS CONSPERSUS Marsh [*Fowler*, 1887, I, p. 194, fig. Pl. 28]

Coastal ; plentiful in a pool by the mouth of the R. Seaton, near Downterry (J.H.K.)

Sub-Order *Palpicornia*

OCHTHEBIUS MARINUS Payk. [*Fowler*, 1887, I, p. 245, fig. Pl. 35]

Sub-maritime ; in numbers in salt marsh, Insworke Barton, nr. Millbrook, June 1909 ; Chelson Meadow, May 1921 (J.H.K.)

OCHTHEBIUS VIRIDIS Peyr. [*Fowler*, 1887-91, VI, p. 35]

Coastal ; Downderry, in swarms, edges of muddy pool, Aug. 1900 ; again Aug. 1916 (J.H.K.)

OCHTHEBIUS LEJOLISI Muls. et Rey. [*Fowler*, 1887-91, VI, p. 35]

Sub-maritime ; in brackish pools on the rocks between Penlee Pt. and Rame Hd., 55 specimens, Sept. 1901 ; May 1925, shore near Picklecombe, 45 examples (J.H.K.)

OCHTHEBIUS IMPRESSICOLLIS Lap. (*bicolon* Steph.) [*Fowler*, 1887, I, p. 246, fig. Pl. 35]

Coastal ; Lipson Marsh, May 1899, one only ; May 1910 in swarms ; Chelson Meadow, Aug. 1907 ; Cawsand to Rame, May 1908 ; Stoke Bay, July 1917 (J.H.K.)

OCHTHEBIUS METALLESCENS Rosenh. var. *poweri* Rye [*Fowler*, 1887, I, p. 246]

Coastal ; one specimen in fresh water trickle on face of rocks on shore at Bovisand, July 1912 (J.H.K.)

PHILYDRUS BICOLOR Fab. (*maritimus* Th.) [*Fowler*, 1887, I, p. 224, fig. Pl. 32]

Chelson Meadow, May 1924, three specimens ; Sept. 1924 in numbers (J.H.K.)

CERCYON LITTORALIS Gyll. [*Fowler*, 1887, I, p. 255, fig. Pl. 36]

Sub-maritime ; generally abundant in the district in the line of rejected seaweed, at high-tide mark on the shore ; var. *binotatum* Steph. [1839, p. 93] frequent with the type form (J.H.K.)

CERCYON DEPRESSUS Steph. [*Fowler*, 1887, I, p. 255]

Sub-maritime ; found with the above, and not uncommon, at Batten and other places in the Plymouth district (J.H.K.)

Sub-Order *Brachelytra*

ALEOCHARA GRISEA Kr. [*Fowler*, 1887-91, II, p. 21]

Sub-maritime ; Batten, Jennycliff, Bigbury B., Tregantle, never in numbers (J.H.K.)

ALEOCHARA ALGARUM Fauv. [*Fowler*, 1887-91, II, p. 22, fig. Pl. 37]

Sub-maritime ; common in decaying seaweed all around the coast (J.H.K.)

ALEOCHARA OBSCURELLA Er. [*Fowler*, 1887-91, II, p. 22, fig. Pl. 37]

Sub-maritime ; with the above, but not so common (J.H.K.)

OXYPODA EXOLETA Er. [*Fowler*, 1887-91, II, p. 29, fig. Pl. 38]

Coastal ; Downderry, Oct. 1900, one specimen (J.H.K.)

HETEROTA (ALIANITA) PLUMBEA Wat. [*Fowler*, 1887-91, II, p. 64, fig. Pl. 42]

Sub-maritime ; under seaweed, Wembury to Tregantle, not common (J.H.K.)

ATHETA THINOBROIDES Kr. (*longula* Heer) [*Fowler*, 1887-91, II, p. 72, fig. Pl. 43]

Coastal ; Wembury beach, several specimens, June and July 1916 ; Downderry ; Stoke B., June 1917 ; Mt. Edgcumbe shore (J.H.K.)

ATHETA VESTITA Grav. [*Fowler*, 1887-91, II, p. 79, fig. Pl. 42]

Sub-maritime ; very common under seaweed on the coast, and often in the estuaries, in small numbers (J.H.K.)

ATHETA FLAVIPES Thoms. (*halobrectha* Shp.) [*Fowler*, 1887-91, II, p. 83, fig. Pl. 44]

Sub-maritime ; common under seaweed and in shingle (J.H.K.)

ATHETA PUNCTICEPS Thoms. (*algae* Hardy) [*Fowler*, 1887-91, II, p. 84]

Coastal ; one specimen, Donderry, Oct. 1900 (J.H.K.)

ATHETA TRIANGULUM Kr. [*Fowler*, 1887-91, II, p. 108]

Coastal ; Cremyll, in seaweed (J.H.K.)

ATHETA INDUBIA Sharp [*Fowler*, 1887-91, II, p. 121]

Coastal ; Millbrook Creek, several, May 1906 (J.H.K.)

ATHETA FUNGI var. *orbata* Er. [*Fowler*, 1887-91, II, p. 139]

Coastal ; Burrow I., May 1911 (J.H.K.)

ACTOCHARIS MARINA Fauv. (*readingi* Shp.) [*Fowler*, 1887-91, II, p. 163, fig. Pl. 50]

Maritime ; originally found at Plymouth by Mr. J. J. Reading ; re-discovered at Millbrook Creek by Dr. M. Cameron Oct. 1900, several specimens under seaweed ; later with J.H.K. in same place found 40 specimens ; July 1901, 23 specimens, July 1902, 9 specimens, gregarious (J.H.K.)

SIPALIA TESTACEA Bris. [*Fowler*, 1887-91, II, p. 166, fig. Pl. 50]

Sub-maritime ; Batten beach under stones below high tide ; Millbrook Creek, in the shingle at roots of rushes at high-tide mark, rare, Mar.-Sept. (J.H.K.)

PHYTOSUS SPINIFER Curt. [*Fowler*, 1887-91, II, p. 169, fig. Pl. 50]

Sub-maritime ; Tregantle, Apr., May, Aug., occasionally in considerable numbers ; Bovisand, one only, July 1912 ; one only, May 1913 ; Stoke B., June 1916, one only ; Bantham, July 1922, 19 specimens (J.H.K.)

PHYTOSUS BALTICUS Kr. [*Fowler*, 1887-91, II, p. 170, fig. Pl. 50]

Sub-maritime ; under seaweed and in the sand below it with *P. spinifer*, often in numbers, at Tregantle ; Bantham, July 1922, several (J.H.K.)

PHYTOSUS NIGRIVENTRIS Chev. [*Fowler*, 1887-91, VI, p. 50]

Sub-maritime ; with the above at Tregantle, not so abundant ; Bantham, July 1922, three examples (J.H.K.)

DIGLOTTA MERSA Hal. [*Fowler*, 1887-91, II, p. 171, fig. Pl. 50]

Maritime ; Batten, once only, one specimen, Apr. 1892 ; under stones much below high water, Millbrook Creek, very sparingly, May 1900, 1907, 1909 (J.H.K.)

HETEROTHOPS BINOTATA Er. [*Fowler*, 1887-91, II, p. 234, fig. Pl. 55]

Sub-maritime ; Jennycliff, Batten, Donderry (J.H.K.)

QUEDIUS UMBRINUS Er. [Fowler, 1887-91, II, p. 240]

Coastal ; uncommon ; once in considerable numbers, Millbrook Creek in the little salt marsh beyond Palmer's Pt., Aug. 1900 (J.H.K.)

QUEDIUS SEMIAENEUS Steph. [Fowler, 1887-91, II, p. 244]

Coastal ; Tregantle ; single specimens frequently, Millbrook Creek ; by the Yealm (J.H.K.)

OCYPUS ATER Grav. [Fowler, 1887-91, II, p. 257, fig. Pl. 58]

Coastal ; Bovisand ; Batten ; Millbrook Creek, in some numbers ; Tregantle (J.H.K.)

PHILONTHUS CRUENTATUS Gmel. [Fowler, 1887-91, II, p. 272, fig. Pl. 59]

Coastal ; Batten and probably all along the coast (J.H.K.)

CAFIUS FUCICOLA Curtis [Fowler, 1887-91, II, p. 282, fig. Pl. 60]

Sub-maritime ; in decaying seaweed ; as a rule, local and rare ; abundant at Batten and Jennycliff, Millbrook Creek, Tregantle (J.H.K.) : Drake's I., March 1911, in sand with *Orchestia littorea* (K.H.B., identified by E.O.W., Brit. Mus.)

CAFIUS XANTHOLOMA Grav. [Fowler, 1887-91, II, p. 282, fig. Pl. 60]

Sub-maritime ; all along the coast, very common (J.H.K.) : Drake's I., March 1911, in sand with *Orchestia littorea* (K.H.B., identified by E.O.W., Brit. Mus.)

var. *variolosus* Shp., not uncommon with the type form in the Plymouth district (J.H.K.)

var. *variegatus* Er., Batten, Jennycliff, etc., not uncommon (J.H.K.)

Note.—The Cafii may be found almost throughout the year and larvae with them (J.H.K.)

LATHROBIUM ANGUSTATUM Lac. [Fowler, 1887-91, II, p. 300, fig. Pl. 62]

One specimen, July 1917, Stoke B. (J.H.K.)

MEDON POCOFR Peyr. [Fowler, 1887-91, II, p. 314, fig. Pl. 63]

Sub-maritime ; Batten, two specimens (J.H.K.)

MEDON RIPICOLA Kr. [Fowler, 1887-91, II, p. 310]

Sub-maritime ; Batten, July 1890, two in February 1897 ; in following May, a quantity in rotting seaweed at Jennycliff ; Aug. 1902, one only on beach beyond Bovisand (J.H.K.)

ASTENUS (SUNIUS) FILIFORMIS Latr. [Fowler, 1887-91, II, p. 320]

Coastal ; Whitsand B., single specimens occasionally ; Tregantle ; Downerry, Aug. 1900, six examples, and at various times since ; Bigbury B., two specimens, May 1911 (J.H.K.)

STENUS ATRATULUS Er. [Fowler, 1887-91, II, p. 339]

Coastal ; Downerry, Aug. 1905 (J.H.K.)

BLEDIUS SPECTABILIS Kr. [Fowler, 1887-91, II, p. 365, fig. Pl. 66]

Thurlestone (N.J.)

OXYTELUS PERRISI Fauv. (*maritimus* Thoms.) [Fowler, 1887-91, II, p. 381]

Sub-maritime ; Tregantle, spring and autumn ; in May 1902, the var. with testaceous elytra occurred in some numbers (J.J.W., J.H.K.)

OXYTELUS COMPLANATUS Pand. [Fowler, 1887-91, II, p. 381]

Coastal ; Batten, Millbrook, etc. (J.H.K.)

TROGOPHLOEUS HALOPHILUS Kies. [Fowler, 1887-91, II, p. 289]

Maritime ; Millbrook Creek, two only, May 1900 ; June, on the S. Down side, in numbers (J.H.K.)

TROGOPHLOEUS UNICOLOR Shp. (*anglicans* Shp.) [Fowler, 1887-91, VI, p. 78]

Sub-maritime ; one under a stone at about half tide near Palmer's Pt., Millbrook Creek ; another on opposite bank of creek, near S. Down, in a similar situation ; two in July in the roll of seaweed at high tide, in the first locality ; August, seventeen specimens ; in July 1905, swarming (J.H.K.)

MICRALYMMA MARINUM Stroem. (*brevipenne* Gyll.) [Fowler, 1887-91, II, p. 407, fig. Pl. 68]

Maritime ; Yealm, Batten, Millbrook Creek, Wivelscombe ; July 1897, at Batten crawling among barnacles ; June 1900, at Millbrook Creek, 20 specimens, with *Lipura maritima*, between slates used in an old landing stage ; again at Batten, Oct. 1907, with larvae and numbers of *Lipura* by scraping little patches of lichen off the rocks (J.H.K.)

HOMALIUM LAEVIUSCULUM Gyll. [Fowler, 1887-91, II, p. 413]

Sub-maritime ; seaweed, common (J.H.K.)

HOMALIUM RIPARIUM Thoms. [Fowler, 1887-91, II, p. 413]

Sub-maritime ; with the above, common (J.H.K.)

Sub-Order *Clavicornia*

ABLATTARIA (SILPHA) LAEVIGATA F. [Fowler, 1887-91, III, p. 52, fig. Pl. 74]

Coastal ; Bovisand ; Tregantle, at roots ; in single specimens only (J.H.K.)

BRACHYGLUTA (BRYAXIS) WATERHOUSEI Rye [Fowler, 1887-91, III, p. 94]

Sub-maritime ; in rejectamenta on the shore near Cargreen, Oct. 1912 ; on the shore, Hooe Lake, near Radford (J.H.K.)

PTENIDIUM PUNCTATUM Gyll. [Fowler, 1887-91, III, p. 137, fig. Pl. 80]

Sub-maritime ; generally distributed from Bigbury B. to Downterry, in great profusion at times under large stones on or close to decaying seaweed, at Batten in particular (J.H.K.)

CORYLOPHUS SUBLAEVIPENNIS Duv. [Fowler, 1887-91, III, p. 145, fig. Pl. 80]

Coastal ; one specimen at roots in sand, Downterry, Aug. 1905 (J.H.K.)

MICRASPIIS 16-PUNCTATA L. [Fowler, 1887-91, III, p. 168, fig. Pl. 82]

Coastal ; Wivelscombe Creek, June 1915 (J.H.K.)

SUBCOCCINELLA (LASIA) 24-PUNCTATA [Fowler, 1887-91, III, p. 156, fig. Pl. 81]

Coastal ; frequently met with on the coast ; in Aug. 1916, in numbers,

both pupae and mature insects, at the roots of *Silene* on the shore at high-tide mark at DOWDERRY (J.H.K.)

PACHYLOPUS (*SAPRINUS*) *MARITIMUS* Steph. [Fowler, 1887-91, III, p. 212, fig. Pl. 86]

Sub-maritime ; Tregantle, under seaweed and in sand, sometimes in numbers (J.H.K.)

ACRITUS PUNCTUM Aubé [Fowler, 1887-91, III, p. 215, fig. Pl. 86]

Sub-maritime ; Tregantle, May 1902, in some numbers ; of late years only single specimens ; Bantham, July 1922, one example (J.J.W., J.H.K.)

MELIGETHES EXILIS Strum [Fowler, 1887-91, III, p. 257, fig. Pl. 90]

Coastal ; Tregantle, on *Armeria*, etc. (J.H.K.)

CORTICARIA CRENULATA Gyll. [Fowler, 1887-91, III, p. 289]

Coastal ; Batten, at roots on the beach, once only (J.H.K.)

CORTICARIA IMPRESSA Ol. (*denticulata* Gyll.) [Fowler, 1887-91, III, p. 289]

Coastal ; Penlee Pt., on gorse attacked by the dodder, May and June 1910 ; Whitsand B. (J.H.K.)

Sub-Order *Lamellicornia*

APHODIUS NITIDULUS Fowler [Fowler, 1887-91, IV, p. 32]

Coastal ; Whitsands, near Rame, in numbers, July 1890 ; very abundant, July 1899 (J.H.K.)

PSAMMOBIUS PORCICOLLIS Ill. [Fowler, 1887-91, IV, p. 38]

Coastal ; Tregantle, apparently the only British locality ; March, Aug., Sept. in various years (J.J.W., J.H.K.)

AEGIALIA ARENARIA F. [Fowler, 1887-91, IV, p. 39, fig. Pl. 102]

Sub-maritime ; Whitsands, not common ; Bantham, July, 1922, several specimens (J.H.K.)

Sub-Order *Phytophaga*

CHRYSOMELA BANKSI F. [Fowler, 1887-91, IV, p. 304, fig. Pl. 130]

Coastal ; generally distributed throughout the Plymouth district (J.H.K.)

CHRYSOMELA HAEMOPTERA L. [Fowler, 1887-91, IV, p. 305, fig. Pl. 130]

Coastal ; Whitsand B. (J.H.K.)

PSYLLIODES MARCIDA Ill. [Fowler, 1887-91, IV, p. 392, fig. Pl. 141]

Coastal ; Bovisand ; Tregantle, on *Cakile maritima* (J.J.W., J.H.K.)

CASSIDA VITTATA Vill. [Fowler, 1887-91, IV, p. 399, fig. Pl. 142]

Coastal ; Millbrook Creek, one only, May 1900 (J.H.K.)

CASSIDA NOBILIS L. [Fowler, 1887-91, IV, p. 400, fig. Pl. 142]

Coastal ; on the underside of a pebble amongst low plants on Wembury Beach, just at high-tide mark, but well within range of a stormy sea, about two dozen specimens as well as the fully fed larvae and pupae, taken, July 21, 1917 (J.H.K.)

Sub-Order *Rhyncophora*

- APION LAEVICOLLE Kirby [*Fowler*, 1887-91, V, p. 147, fig. Pl. 155]
Coastal ; Whitsands, Apr. 1900 (J.H.K.)
- APION SCHÖNHERRI Boh. [*Fowler*, 1887-91, V, p. 147]
Coastal ; one specimen, Bovisand, July, 1902 (J.H.K.)
- APION ONONICOLA Bach (*bohemani* Thoms.) [*Fowler*, 1887-91, V, p. 148]
Coastal ; on Ononis, Tregantle, Aug. 1902, several (J.H.K.)
- APION CONFLUENS Kirby [*Fowler*, 1887-91, V, p. 150]
Coastal ; Tregantle, on Matricaria, on the slopes above high-water mark, occasionally in numbers (J.H.K.)
- APION HOOKERI Kirby [*Fowler*, 1887-91, V, p. 152, fig. Pl. 154]
Coastal ; on the coast only, on Matricaria (J.H.K.)
- APION ATOMARIUM Kirby [*Fowler*, 1887-91, V, p. 156]
Coastal ; Whitsand B., at roots of thyme, sometimes in quantity (J.J.W., J.H.K.)
- OTIORRHYNCHUS ATROAPTERUS De G. [*Fowler*, 1887-91, V, p. 176, fig. Pl. 157]
Coastal ; Bigbury B., May 1911 (J.H.K.)
- OTIORRHYNCHUS RUGIFRONS Gyll. [*Fowler*, 1887-91, V, p. 179, fig. Pl. 157]
Coastal ; Batten, single specimens, July 1890, June 1895 ; Tregantle, often in numbers (J.H.K.)
- POLYDRUSUS CHRYSOMELA Ol. [*Fowler*, 1887-91, V, p. 202, fig. Pl. 160]
Sub-maritime ; Wivelscombe Creek, 10.6.15, by sweeping the banks just above high-water mark ; the specimens were rather abraded (J.H.K.)
- TRACHYPHLOEUS MYRMECOPHILUS Seidl. [*Fowler*, 1887-91, V, p. 183, fig. Pl. 158]
Coastal ; at roots of low plants on the slopes, mouth of R. Yealm, Oct. 1924, 3 specimens (J.H.K.)
- CATHORMIOCERUS ATTAPHILUS Bris. [*Entomol. Month. Mag.*, 1921, p. 100, fig.]
Coastal ; same locality and conditions as preceding ; 1924, Oct. 1, one specimen ; 1925, Sept. 14, three ; Oct. 2, seven ; Oct. 14, three. Only taken elsewhere in Britain at the Lizard ; originally discovered in 1880 at the Belle-Ile-en-Mer (J.H.K.)
- CNEORRHINUS PLAGIATUS Schall. (*geminatus* Fab.) [*Fowler*, 1887-91, V, p. 208, fig. Pl. 161]
Coastal ; Burrow I., May, 1911 in abundance, not on mainland ; Tregantle, common (J.H.K.)
- SITONES WATERHOUSEI Walt. [*Fowler*, 1887-91, V, p. 220, fig. Pl. 162]
Coastal ; Batten, at roots of low plants, Sept. 1897 ; nr. Yealmpton, May 1911 ; Whitsand B., frequently, spring and autumn (J.J.W., J.H.K.)
- TYCHIUS SCHNEIDERI Herbst [*Fowler*, 1887-91, V, p. 299, fig. Pl. 168]
Coastal ; recorded in Fowler's Col. Brit. Is. as occurring at Whitsand B.

SMICRONYX JUNGERMANNIAE Reich [*Fowler*, 1887-91, V, p. 283]

Coastal ; abundant in some years on the dodder of the gorse at Penlee Pt., May and June ; also at Tregantle (J.H.K.)

MECINUS CIRCULATUS Marsh [*Fowler*, 1887-91, V, p. 313]

Coastal ; Tregantle, at roots of low plants in Apr. and May in various years (J.J.W., J.H.K.)

CEUTHORRHYNCHUS TERMINATUS Herbst. [*Fowler*, 1887-91, V, p. 363, fig. Pl. 174]

Coastal ; Bovisand, Aug. 1902, one specimen at roots on the shore ; one specimen, Tregantle, June 1905 (J.H.K.)

CEUTHORRHYNCHUS DAWSONI Bris. [*Fowler*, 1887-91, V, p. 366, fig. Pl. 174]

Coastal ; Bovisand, Batten, Whitsands ; often in abundance on Plantago (J.H.K.)

LIMNOBARIS T-ALBUM L. [*Fowler*, 1887-91, V, p. 379, fig. Pl. 175]

Sub-maritime ; in some numbers at Wivelscombe Creek, June 1915, shore at Bere Ferrers, June 1916, by sweeping sedges ; both places covered with salt water for a brief period at spring tides (J.H.K.)

CODIOSOMA SPADIX Herbst [*Fowler*, 1887-91, V, p. 396, fig. Pl. 177]

Sub-maritime ; Batten, in an old wooden pile on the shore, May 1892 ; South Down, in old piles stuck into the mud flats, larvae and perfect insects in numbers, May 1909 (J.H.K.)

Sub-Order *Heteromera*

PHYLAN (HELIOPATHES) GIBBUS F. [*Fowler*, 1887-91, V, p. 8, fig. Pl. 143]

Coastal ; Whitsand B., frequent (J.H.K.)

HOPATRUM SABULOSUM Gyll. [*Fowler*, 1887-91, V, p. 9, fig. Pl. 143]

Coastal ; Whitsands ; Downderry (J.H.K.)

PHALERIA CADAVERINA F. [*Fowler*, 1887-91, V, p. 11, fig. Pl. 143]

Sub-maritime ; Tregantle, often abundant ; Downderry ; Bantham, July 1922, abundant (J.H.K.)

ANONCODES (NACERDES) MELANURA Schmidt [*Fowler*, 1887-91, V, p. 61 fig. Pl. 148]

Coastal ; Cattedown, one specimen, caught in the road ; three specimens bred from old timber from a cellar at Stonehouse (J.H.K.)

MORDELLISTENA PARVULA var. *inaequalis* Muls. [*Fowler*, 1887-91, V, p. 73]

Coastal ; Tregantle, July 1900, three specimens (J.H.K.)

ANTHICUS ANGUSTATUS Curt. [*Fowler*, 1887-91, V, p. 87, fig. Pl. 150]

Sub-maritime ; Bigbury B., Apr. 1, 1907, abundant under seaweed at high-water mark, under stones and in sand, 96 specimens obtained (J.H.K.)

Phylum **MOLLUSCA**Class **SOLENOGASTRES**Family **Neomeniidae**

PRONEOMENIA AGLAOPHENIAE Kovalevsky & Marion [*Pruvot*, 1891, p. 720]

Common on *Thecocarpus* (*Aglaophenia*) *myriophyllum*, generally coiled around the base of the stem of the hydroid (S.P., E.J.A.) : at four positions S.W. of Eddystone, 43-49 fms. (Crawshay, 1912, p. 367) : south of Rame Head in 27 fms., 1920 (R.W.)

NEMATOMENIA BANYULENSIS (Pruvot) [1891, p. 715, as *Dondersia*]

Occasionally on *Lafœa dumosa* (R.A.T., S.P., E.J.A.) : at four positions S.W. of Eddystone, 42-49 fms., on *Lafœa dumosa* (Crawshay, 1912, p. 368) : Eddystone, 29 fms., 1920 (R.W.)

Gonads ripe : Aug. (R.A.T.)

Class **PLACOPHORA (LORICATA)**Family **Lepidopleuridae**

LEPIDOPLEURUS ASELLUS (Gmelin) [*Forbes and Hanley*, 1853, II, p. 407, as *Chiton*]

Abundant, 15-30 fms., especially on muddy gravel (S.P.) : at 9 positions S.W. of Eddystone, 40-43 fms. (Crawshay, 1912, p. 368)

SALCOMBE. Common in dredge material (Allen & Todd, 1900, p. 210)

Family **Lepidochitonidae**

LEPIDOCHITON CINEREUS (L.) [*Forbes and Hanley*, 1853, II, p. 402, as *Chiton*]

The Sound, under stones at low tide ; Yealm R., abundant on the sand-bank ; Looe, on shore, one specimen with ripe eggs, middle of April (S.P.) : 1906 (E.W.S., A.J.S.)

TONICELLA RUBRA (L.) [*Forbes and Hanley*, 1853, II, p. 399]

New Grounds, Cawsand B., Wembury B., between tide-marks, March-April, 1911, not common (K.H.B.)

CALLOCHITON ACHATINUS (Brown) [*Jeffreys*, 1865, III, p. 226, as *Chiton laevis*]

The Sound, under stones at low tide (S.P.)

Family **Cryptoconchidae**

ACANTHOCHITONA CRINITUS (Pennant) [*Forbes and Hanley*, 1853, II, p. 393, as *Chiton fascicularis*]

Rocks under Hoe, moderately common among barnacles ; Millbay Ch. ; Mewstone Ledge, one specimen ; Yealm R., occasionally in dredgings (R.A.T.) : Blackstone Rks., Wembury B., abundant ; Yealm Sand-bank (S.P.) : shore, Balanus zone, 20.1.25, common creeping over *Balanus*, a dozen collected near landing place below Laboratory in a few minutes (J.H.O.)

SALCOMBE. In dredge between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 210)

Class **PELECYPODA**

Order NUCULACEA

Family **Nuculidae**

NUCULA NUCLEUS (L.) [*Forbes and Hanley*, 1853, II, p. 215]

Common on muddy gravel, 10-30 fms. (S.P.): Millbay shell-gravel; Cawsand B.; Mewstone Gds. (R.A.T.): Eddystone Gds. (E.J.A.): seven specimens S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 372): common in places, rough ground with mud, local, outside Sound (Ford, 1923)

SALCOMBE. Not uncommon in dredge material from the Channel off Tosnos Pt. (Allen & Todd, 1900, p. 209)

NUCULA RADIATA Hanley [*Forbes and Hanley*, 1853, II, p. 220]

Common in shelly gravel, inside and outside Sound (Ford, 1923)

NUCULA NITIDA Sowerby [*Forbes and Hanley*, 1853, II, p. 218]

Jennycliff B., Cawsand B.; in muddy sand (R.A.T.): Eddystone Gds., in the fine sand of the 'Outer' trawling ground (E.J.A.): very common, silty sand, inside and outside Sound (Ford, 1923)

Order ANOMIACEA

Family **Anomiidae**

ANOMIA EPHIPIUM L. [*Jeffreys*, 1863, II, p. 30]

More or less common everywhere, L.W.-30 fms., on stones, shells, rocks, etc. (R.A.T.): Eddystone Gds., wherever suitable attachment can be found, least frequent on the fine sand grounds (E.J.A.): from several positions S.W. of Eddystone, 40-50 fms., common, possibly including *Monia patelliformis* (Crawshay, 1912, p. 373)

Segmenting eggs and swimming larvae on fertilisation, Feb.; sperm fairly active Apr. (J.H.O.)

SALCOMBE. Found everywhere, especially in dredge material (Allen & Todd, 1900, p. 210)

MONIA PATELLIFORMIS (L.) [*Jeffreys*, 1863, II, p. 34, as *Anomia*]

Eddystone Gds., wherever suitable attachment is to be found, least common on the fine sand grounds (E.J.A.)

MONIA SQUAMA (Gmelin) [*Forbes and Hanley*, 1853, II, p. 336 as *Anomia striata*]

Typical and incrassate forms, Eddystone Gds (R.W.)

HETERANOMIA SQUAMULA (L.) [*Jeffreys*, 1863, II, p. 32, as var. of *Anomia ephippium*; see Winckworth, Proc. Maloc. Soc. XV, 1922, p. 33]

Common, Sound and outside (R.W.)

Order ARCACEA

Family **Arcidae**

ARCA (NAVICULA) TETRAGONA Póli [*Jeffreys*, 1863, II, p. 180]

Occasionally on all rocky shores in crevices and among stones, L.W.-3 fms. (S.P.): not uncommon in rock crevices at Drake's I. and Rum B.;

occasionally from the Bridge and Millbay Ch. (R.A.T.) : at three positions S.W. of Eddystone, 42-49 fms. or over (Crawshay, 1912, p. 373)

ARCA (BARBATIA) LACTEA L. [Jeffreys, 1863, II, p. 177]

Occasionally between tide-marks, among stones, etc., and in 15-30 fms., particularly on muddy gravel (S.P.) : Queen's Gd. (R.A.T., S.P.) : Reny Rks., occasionally (R.A.T.) : occasionally off Stoke Pt., 23 fms. 1929 (G.A.S.)

LIMOPSIS AURITA (Brocchi) [Jeffreys, 1863, II, p. 161]

Several dead shells (S.P.)

GLYCYMERIS GLYCYMERIS (L.) [Jeffreys, 1863, II, p. 166, as *Pectunculus*]

Common in sandy and muddy gravel, 7-30 fms. (S.P.) : moderately common on Mewstone Ledge in the patches of gravel between the rocks and occasionally from the other grounds round the Mewstone ; Queen's Gd. ; Cawsand B. ; Rame-Eddystone Gds. (R.A.T.) : Eddystone Gds. (E.J.A.) : at several stations S.W. of Eddystone, 40-49 fms., mostly very small (Crawshay, 1912, p. 373) : fairly common in shell gravel, outside grounds (Ford, 1923)

Order MYTILACEA

Family **Mytilidae**

MYTILUS EDULIS L. [Jeffreys, 1863, II, p. 104]

Very common on the coal-hulks moored in the Cattewater and on the piles of the Promenade Pier ; young specimens are common between tide-marks on the rocks below the Hoe and occasionally from Drake's I. and Asia Sh. (R.A.T.) : Yealm Sand-bank (S.P.) : under Laira Bridge at low water, sometimes containing *Pinnotheres* (A.J.S.) : common in Tamar as far as Weir Quay ; common in Lynher as far as shore, 100 yds. above Antony Creek (E.P.)

Breeding : one from Promenade Pier spawned in Tank, 21.2.11 (A.J.S.) : from Great Western Docks, on buoy, nearly 100 per cent. eggs fertilised in laboratory, 6.3.13 ; from Laira Bridge and adjacent walls, approaching ripeness and none apparently spent, 15.5.19 ; from Yealm shore at Steer Pt., female spawned in dish in tank, a few eggs segmenting, 19.6.20 (J.H.O.) : samples of 20 to 50 *Mytilus edulis* were examined from the middle of March to the middle of June 1930, from Saltash and from Steer Point (Yealm River), but no artificial fertilisation was successful until June 4th, and then only from the Steer Point sample ; a sample of 60 large mussels from Saltash on June 16, showed only a few even half-ripe and there was no motile sperm (A.J.S.)

MODIOLUS MODIOLUS (L.) [Jeffreys, 1863, II, p. 111, as *Mytilus*]

At two positions S.W. of Eddystone, single specimen, 40-42 fms. [Crawshay, 1912, p. 373]

SALCOMBE. One living specimen on western shore of the Salstone ; small *Modiolus*, probably the young of this species, were not uncommon in dredge material, generally attached to stones and shells (Allen & Todd, 1900, p. 209) : large specimens from Salcombe (N.J.B.)

MODIOLUS BARBATUS (L.) [*Jeffreys*, 1863, II, p. 114, as *Mytilus*]

Occasionally between tide-marks, under boulders (s.p.): Asia Sh. (R.A.T.): one S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 373)

MODIOLUS ADRIATICUS (Lamarck) [*Jeffreys*, 1863, II, p. 116, as *Mytilus*]

Sound, 4 fms., 1920 (R.W.)

MODIOLUS PHASEOLINUS Philippi [*Jeffreys*, 1863, II, p. 118, as *Mytilus*]

Not uncommon on the outside grounds in 15-30 fms.; occasionally between tide-marks on the Breakwater and Drake's I.; Millbay Pit (R.A.T.): at several positions S.W. of Eddystone, 40-50 fms. or over (Crawshay, 1912, p. 374)

MUSCULUS MARMORATUS (Forbes) [*Jeffreys*, 1863, II, p. 122, as *Modiolaria*]

More or less common, buried in the tests of tunicates; Millbay Pit and Channel; Mewstone Ledge; Yealm R.; etc. (R.A.T., s.p.): occasionally in sandy mud, outside Sound (Ford, 1923): at seven positions S.W. of Eddystone, one free, others in tests of Ascidians, one attached by a byssus to the base of a colony of *Cellaria*, 40-51 fms. (Crawshay, 1912, p. 374)

SALCOMBE. Common in dredge material, attached to or boring in the tests of Ascidians (*Asciidiella*) (Allen & Todd, 1900, p. 209)

Order PECTINACEA

Family **Pectinidae****PECTEN MAXIMUS (L.)** [*Jeffreys*, 1863, II, p. 73]

Mewstone 'Echinoderm' Gds., not uncommon; Rame-Eddystone Gds., etc. (R.A.T.): Eddystone Gds., moderately abundant on the various gravel gds. (E.J.A., s.p.): Mewstone Ledge; Asia Sh.; Yealm Sand-bank, between tide-marks, one specimen (R.A.T.): at several positions S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 374)

SALCOMBE. A few taken in the dredge, half grown, not uncommon at low-tide on the *Zostera* bank under the Marine Hotel, lying on the surface covered by the *Zostera* (Allen & Todd, 1900, p. 210)

CHLAMYS VARIA (L.) [*Jeffreys*, 1863, II, p. 53, as *Pecten*]

The Breakwater, not uncommon at low tide; occasional specimens from Drake's I., Asia Sh., Queen's Gd., Rum B., Yealm R. (R.A.T.): one young specimen S.W. of Eddystone, 42 fms. (Crawshay 1912, p. 374)

SALCOMBE. Two dredged in the Channel between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 210)

CHLAMYS DISTORTA (da Costa) [*Jeffreys*, 1863, II, p. 51, as *Pecten pusio*]

Not uncommon on all rocky shores, among stones, inside dead shells, etc., L.W.-30 fms. (s.p.): Drake's I.; Asia Sh.; Queen's Gd.; the Breakwater; etc. (R.A.T., s.p.): one dead valve and one small living specimen, S.W. of Eddystone, 47-49 fms. or over (Crawshay, 1912, p. 374)

CHLAMYS (AEQUIPECTEN) OPERCULARIS (L.) [*Jeffreys*, 1863, II, p. 59, as *Pecten*]

More or less common everywhere in 15-30 fms., especially on the Mewstone 'Echinoderm' Gd. and about 5 m. S.W. of Penlee Pt.; occasionally

from Queen's Gd. and Asia Sh. ; the Breakwater, single small specimen between tide-marks (R.A.T.) : Eddystone Gds., more or less abundant on all the grounds, often in beds which, while of limited extent, contain very numerous individuals (E.J.A., S.P.) : in several positions S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 374)

Breeding : June-Aug. (S.P.) : most frequently Jan.-June, in smaller numbers July to December ; lunar periodicity (Amirthalingam, 1928)

SALCOMBE. A few living specimens on the Salstone ; common in the dredge material (Allen & Todd, 1900, p. 209)

CHLAMYS (PALLIOLUM) TIGERINA (O. F. Müller) [*Forbes and Hanley*, 1853, II, p. 285, as *Pecten*]

Not uncommon on coarse muddy or sandy gravel ; Stoke Pt. Gds. ; Rame-Eddystone Gds. ; etc. (S.P.) : Mewstone 'Echinoderm' Gd. (R.A.T., S.P.) : Eddystone Gds., not abundant, for the most part on coarse ground (E.J.A.) : the Breakwater, single specimen between tide-marks (R.A.T.) : at ten positions S.W. of Eddystone, 40-46 fms. (Crawshay, 1912, p. 375)

PSEUDAMUSSIUM SIMILIS (Laskey) [*Jeffreys*, 1863, II, p. 71, as *Pecten*]

Eddystone, hundreds of valves and one living, 3.8.20 (R.W.)

Family **Pteriidae**

PTERIA HIRUNDO (L.) [*Forbes and Hanley*, 1853, II, p. 251, as *Avicula tarentina*]
Very rare from the offing (R.A.T.)

Order OSTREACEA

Family **Limidae**

LIMA HIANIS (Gmelin) [*Jeffreys*, 1863, II, p. 87]

Abundant at extreme low tide among a small patch of stones with muddy gravel on the N. side of the Breakwater, one record ; Reny Rks., one record (R.A.T.) : Drake's I., one record (S.P.) : at three positions S.W. of Eddystone, 46-49 fms. or over (Crawshay, 1912, p. 375)

LIMA LOSCOMBI Sowerby [*Jeffreys*, 1863, II, p. 85]

Not uncommon on the coarse grounds W. of the Eddystone (E.J.A., S.P.) : Rame-Eddystone Gds. (S.P.) : Mewstone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (W.G., S.P.) : at five positions S.W. of Eddystone, 42-51 fms. (Crawshay 1912, p. 375)

LIMA (LIMATULA) SUBAURICULATA (Montagu) [*Jeffreys*, 1863, II, p. 82]

Dead shells only (R.A.T.) : Eddystone Gds. (R.W.)

Family **Ostreidae**

OSTREA EDULIS L. [*Jeffreys*, 1863, II, p. 38]

Millbay Ch. ; Queen's Gd. ; Mewstone Ledge ; Yealm R. ; stray specimens occasionally dredged (R.A.T.) : inside the Bridge (S.P.) : extensive oyster beds cultivated in the Tamar R. at Saltash and in the Yealm R. (E.J.A.) : mussel bed off Neille Pt. opposite mouth of Tavy (E.P.)

Breeding : swimming larvae in great quantities given off in aquarium tank, Aug. 31st.—Sept. 2nd. 1915 (A.J.S.)

Family **Pinnidae**

PINNA (ATRINA) FRAGILIS Pennant [*Jeffreys*, 1863, II, p. 99, as *P. rudis*]

Small specimens are occasionally taken on gravel off Rame Hd., 20-30 fms. ; dead shells are common (R.A.T.) : Queen's Gd. ; Stoke Pt. Gds., etc. ; small specimens only (S.P.) : pairs of empty valves at several positions S.W. of Eddystone, 42-52 fms. (Crawshay, 1912, p. 374)

SALCOMBE. One or two valves found on west shore of Salstone (Allen & Todd, 1900, p. 209) : occasionally found alive in mud, large specimens (M.V.L.) : living in *Zostera* bed, 1920, 1923 (R.W.)

Order LUCINACEA

Family **Astartidae**

ASTARTE SULCATA (da Costa) [*Forbes and Hanley*, 1853, I, p. 452]

Not uncommon, 15-30 fms., generally on muddy or sandy gravel (R.A.T., S.P.) : at several positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 375) : local, common in places in muddy shingle, outside grounds (Ford, 1923)

ASTARTE (GOODALLIA) TRIANGULARIS (Montagu) [*Jeffreys*, 1863, II, p. 318]

Valves common, near Hand Deeps, Eddystone, 3.8.20 (R.W.)

Family **Cyprinidae**

CYPRINA ISLANDICA (L.) [*Forbes and Hanley*, 1853, I, p. 441]

Occasionally, 15-30 fms. ; dead shells moderately common (R.A.T.) : a single living specimen S.W. of Eddystone, a few dead, 42-46 fms. (Crawshay, 1912, p. 375) : small specimens in muddy sand, inside and outside grounds (Ford, 1923)

Family **Thyasiridae**

THYASIRA FLEXUOSA (Montagu) [*Jeffreys*, 1863, II, p. 247, as *Axinus*]

Yealm Sand-bank, occasionally ; dead shells are very common in Caw-sand B. (R.A.T.) : very common in mud, inside and outside Sound (Ford, 1923)

SALCOMBE. Not uncommon in the sand and *Zostera* banks between Millbay and Ferry House, buried several inches below the surface (Allen & Todd, 1900, p. 208)

Family **Diplodontidae**

DIPLODONTA ROTUNDATA (Montagu) [*Jeffreys*, 1863, II, p. 254]

Dead shells only (R.A.T.) : occasionally in silty sand, outside Sound (Ford, 1923)

SALCOMBE. Shell dredged in Salcombe Harbour (Allen & Todd, 1900, p. 208)

Family **Lucinidae**

MYRTEA SPINIFERA (Montagu) [*Forbes and Hanley*, 1853, II, p. 49, as *Lucina*]

Rame-Eddystone Gds. (S.P.) : dead shells not uncommon (R.A.T.) : occasionally in silty sand, outside grounds (Ford, 1923)

PHACOIDES (LUCINOMA) BOREALIS (L.) [Jeffreys, 1863, II, p. 242, as Lucina]

Occasionally on the Zostera bed N.E. of Drake's I. and on the Yealm Sand Bank; dead shells are very common in Cawsand B. (R.A.T.): one young specimen S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 376): small specimens on muddy or silty sand, inside and outside grounds (Ford, 1923)

SALCOMBE. Found chiefly in the Zostera banks on the East side of the Harbour between Millbay and the Ferry House, one or two in the Zostera bank under Marine Hotel; always buried 6 or 8 inches (Allen & Todd, 1900, p. 208)

Order LEPTONACEA

Family Galeommatidae

GALEOMMA TURTONI Sowerby [Jeffreys, 1863, II, p. 188]

From rock about 4 miles off Revelstoke, dredge, 18.12.25; red rock between Stoke Pt. and Mewstone, 22.4.27 (C.M.Y.): occasional specimens Mewstone-Revelstoke Pt. in 20-23 fms., 1929 (G.A.S.)

Family Leptonidae

LEPTON SQUAMOSUM (Montagu) [Forbes and Hanley, 1853, II, p. 98]

Dead shells only (R.A.T.): R. Yealm, South shore, on Mya bank in burrows of Upogebia, 4 specimens found in 2 burrows 30.6.19, 5.2.24; R. Yealm, shore by Zostera bed in a Gebia burrow, 23.10.22 (J.H.O.): R. Yealm on *Amphitrite johnstoni* ground near Noss, one specimen, 15.8.23 (A.D.H.)

SALCOMBE. Commensal with *Upogebia stellata* (Norman, 1891): only shells found (Allen & Todd, 1900, p. 209): two living in one Gebia burrow, 12.9.23: one of these spatped seven days later (R.W.): living specimens on two occasions in Gebia burrows in Salcombe Estuary in black muddy sand (G.M.S.)

LEPTON NITIDUM Turton [Jeffreys, 1863, II, p. 198]

About a dozen valves, near Hand Deep, Eddystone, 3.8.20 (R.W.)

LEPTON (EPILEPTON) CLARKIAE Clark [Jeffreys, 1863, II, p. 202]

SALCOMBE. In Phascolosoma burrows, 12.9.23 (R.W.)

DEVONIA PERRIERI (Malard) [Anthony, 1916, p. 377, as Entovalva]

SALCOMBE. Attached to *Leptosynapta inhaerens*, April, May and September, 1923 (G.B., J.H.O., R.W.)

KELLIA SUBORBICULARIS (Montagu) [Forbes and Hanley, 1853, II, p. 87]

Not uncommon on all rocky shores, L.W.-30 fms., in crevices, inside dead shells, etc., particularly where there is a thin layer of silt; gregarious (S.P.): Drake's I.; Asia Sh.; Queen's Gd.; Rum B.; Millbay Ch., in Saxicava borings; etc. (R.A.T., S.P.): Stoke Pt. Gds. in Pholadidea crypts, etc. (S.P.): Eddystone Gds.; generally in fine mud inside dead shells (E.J.A., S.P.): at four positions S.W. of Eddystone, 40-44 fms. (Crawshay, 1912, p. 376)

SALCOMBE. Often present in dredge material, generally in dead bivalve shells in which there was a deposit of mud (Allen & Todd, 1900, p. 208)

MYSELLA BIDENTATA (Montagu) [*Jeffreys*, 1863, II, p. 208, as *Montacuta*]

One living, 28 fms., Rame-Eddystone, and valves, 1920 (R.W.) : common in silty sand, inside and outside grounds (Ford, 1923)

SALCOMBE. Associated with *Ophiocnida brachiata* and in *Phascolosoma* burrows, 1923 (J.H.O., R.W.)

LASAEA RUBRA (Montagu) [*Forbes and Hanley*, 1853, II, p. 94, as *Kellia*]

Abundant between tide-marks on all rocky shores, in crevices, etc. (S.P.) : rocks below the Hoe, very common among barnacles and the roots of *Fucus*, etc. (R.A.T.)

MONTACUTA SUBSTRIATA (Montagu) [*Jeffreys*, 1863, II, p. 205]

Common attached to the anal spines of *Spatangus purpureus* (R.A.T., S.P.) : at one position S.W. of Eddystone, 46 fms., attached to *Spatangus purpureus* (Crawshay, 1912, p. 376)

MONTACUTA FERRUGINOSA (Montagu) [*Forbes and Hanley*, 1853, II, p. 72]

Yealm sand bank, common commensal with *Echinocardium cordatum* (R.A.T.) : common commensal with *Echinocardium cordatum*, silty sand, outside Sound (Ford, 1923)

SALCOMBE. Always found commensal with *Echinocardium cordatum* in the clean sand at Millbay (Allen & Todd, 1900, p. 208)

Order TELLINACEA

Family **Tellinidae****TELLINA CRASSA** Pennant [*Forbes and Hanley*, 1853, I, p. 288]

Drake's I., occasionally between tide-marks (R.A.T.) : Mewstone Gds., common ; Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (S.P.) : Eddystone Gds. (E.J.A., S.P.) : Yealm R., occasionally on coarse sand between tide-marks (R.A.T.) : at two positions S.W. of Eddystone, one alive, one dead, 45-46 fms. (Crawshay, 1912, p. 376) : common in shell gravel, inside and outside the Sound (Ford, 1923)

TELLINA INCARNATA L. [*Forbes and Hanley*, 1853, I, p. 298]

Dead shells only (R.A.T.)

SALCOMBE. Shells only (Allen & Todd, 1900, p. 206)

TELLINA DONACINA L. (*Forbes and Hanley*, 1853, I, p. 292)

Yealm R., occasionally in coarse sand between tide-marks (R.A.T.) : Mewstone bearing N. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles, dredge 10.6.12, 5 specimens (A.J.S.) : occasionally on the outside grounds (Ford, 1923)

TELLINA PYGMAEA Lovén [*Jeffreys*, 1863, II, p. 388, as *T. pusilla*]

Common in shell gravel, New Gds., Eddystone Gds. (Ford, 1923)

TELLINA TENUIS da Costa [*Jeffreys*, 1863, II, p. 379]

SALCOMBE. East side of Estuary (R.W.)

TELLINA FABULA Gmelin [*Forbes and Hanley*, 1853, I, p. 302]

Not uncommon in the muddy sand of the *Zostera* beds ; Cawsand B. ;

Batten B. ; Jennycliff B. ; etc. (s.p.) : common in clean silty sand on inside and outside grounds (Ford, 1923)

SALCOMBE. A living specimen in the Zostera bank under the Marine Hotel, buried 6 or 8 inches (Allen & Todd, 1900, p. 206)

MACOMA BALTHICA (L.) [*Forbes and Hanley*, 1853, I, p. 304, as *Tellina solidula*]

Saltash, one record (E.J.A.) : hard ground above Ince Castle, R. Lynher, about half-tide ; dead shells at Weir Quay and district, R. Tamar (E.P.)

SALCOMBE. Shells common on mud near Kingsbridge ; one or two living specimens in muddy gravel between Zostera and shore, near Ditch End, buried three or four inches (Allen & Todd, 1900, p. 207)

Family Scrobiculariidae

SCROBICULARIA PLANA (da Costa) [*Forbes and Hanley*, 1853, I, p. 326, as *S. piperata*]

St. John's Lake, Hamoaze, common in fine tenacious mud (R.A.T.) : in stiff mud as far as Pentillie Quay, R. Tamar ; mud banks immediately above St. German's Viaduct ; common (E.P.)

SALCOMBE. Not uncommon in the mud just to the South of Snape's Pt. and in the gravel to the North of Pilworthy Pt., four or five together ; single specimens in the creek below the Rectory (Southpool Lake) in gravel, south-east of Pilworthy Pt., and in gravel under Marine Hotel (Allen & Todd, 1900, p. 207)

ABRA PRISMATICA (Montagu) [*Jeffreys*, 1863, II, p. 435, as *Scrobicularia*]

Rame-Eddystone ; three specimens S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 376) ; Cawsand B., empty shells very common ; Cawsand (K.H.B.) : common in clean sand inside and outside Sound ; Whitsand B. (Ford, 1923) ; ca 30 fms., near Hand Deep, Eddystone, a few valves (R.W.)

ABRA NITIDA (Müller) [*Jeffreys*, 1863, II, p. 436, as *Scrobicularia*]

Dead shells in Sound in black mud ; Cawsand B. (K.H.B.) : very common in silty sand, inside and outside Sound (Ford, 1923) : near Mallard Buoy in numbers (J.R.B.)

ABRA ALBA (Wood) [*Jeffreys*, 1863, II, p. 438, as *Scrobicularia*]

Very common in silty sand, inside and outside Sound, especially Bigbury Bay (Ford, 1923 and 1925, p. 539 ; G.A.S.) : near Mallard Buoy in large numbers (J.R.B.)

SALCOMBE. Several living specimens dredged in the channel off Tosnos Pt. (Allen & Todd, 1900, p. 207)

Family Garidæ

GARI FERROENSIS (Chemnitz) [*Jeffreys*, 1863, II, p. 396, as *Psammobia ferroensis*]

Small specimens, not uncommon in Cawsand B., and dead shells are moderately common in 15-30 fms. (R.A.T.) : one dead valve S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 377)

GARI TELLINELLA (Lamarck) [*Jeffreys*, 1863, II, p. 392, as *Psammobia*]

Millbay Ch. ; Mewstone Gds., common in gravel and coarse sand (R.A.T.) : Stoke Pt. Gds. ; Rame-Eddystone Gds. ; etc. (s.p.) : one dead shell S.W.

of Eddystone 49-53 fms. (Crawshay, 1912, p. 378) : fairly common inside and outside Sound in shell gravel (Ford, 1923)

GARI COSTULATA (Turton) [*Jeffreys*, 1863, II, p. 394, as *Psammobia*]

Occasionally with *G. tellinella* ; Rame-Eddystone Gds. ; Eddystone Gds. ; etc. (S.P.) : single specimens S.W. of Eddystone, 40-43 fms. (Crawshay, 1912, p. 377) : rare in shell-gravel in Sound (Ford, 1923)

GARI (PSAMMOCOLA) DEPRESSA (Pennant) [*Jeffreys*, 1863, II, p. 398, as *Psammobia vespertina*]

Yealm R., not uncommon in coarse sand between tide-marks (R.A.T.) : sand bank, R. Yealm, digging in sand at low tide, 15 specimens, 1.5.08 (A.J.S.)

Family **Donacidae**

DONAX VITTATUS (da Costa) [*Forbes and Hanley*, 1853, I, p. 332, as *D. anatinus*]

Whitsand B., occasional specimens (R.A.T.) : common on clean sand outside Sound (Ford, 1923)

DONAX VARIEGATUS (Gmelin) [*Forbes and Hanley*, 1853, I, p. 336, as *D. politus*]

Dead shells only (R.A.T.)

Family **Mactridae**

MACTRA CORALLINA (L.) [*Jeffreys*, 1863, II, p. 422, as *M. stultorum*]

Dead shells only ; these are common in West Ch. and Whitsand B. (R.A.T.) : common living in clean sand, Whitsand B., Bigbury B. (Ford, 1923)

SPISULA SOLIDA (L.) [*Forbes and Hanley*, 1853, I, p. 351, as *Mactra*]

Drake's I., common on sand bank at E. end (S.P. and A.J.S.) : Yealm Sand bank (R.A.T.) : dead shells common on outside Gds. (Ford, 1923)

SALCOMBE. Fairly common in the clean shell-gravel in the " Bag " off Snape's Pt. ; shells were very common in North and South Sand Bays ; one or two specimens obtained on the Bar ; when dredging in the latter locality on Oct. 2nd, 1896, large numbers of this species were obtained (Allen & Todd, 1900, p. 207)

SPISULA ELLIPTICA (Brown) [*Forbes and Hanley*, 1853, I, p. 356, as *Mactra*]

West Entrance, abundant ; Cawsand B., moderately common (S.P.) : at three positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 376) : common in silty sand, inside and outside Sound (Ford, 1923 and 1925, p. 535)

SPISULA SUBTRUNCATA (da Costa) [*Jeffreys*, 1863, II, p. 419, as *Mactra*]

Common in silty sand, outside grounds (Ford, 1923)

Family **Lutrariidae**

LUTRARIA LUTRARIA (L.) [*Jeffreys*, 1863, II, p. 428, as *L. elliptica*]

Drake's I., abundant in a small sandy patch on the *Zostera* bed on the N.E. side (S.P.) : one dead valve S.W. of Eddystone, 42 fms. (Crawshay,

1912, p. 376) : fairly common on sandy mud and sand inside and outside the Sound (Ford, 1923 and 1925)

Breeding : gonads ripe, Mar.-Apr. (s.p.)

SALCOMBE. On sand and *Zostera* bank off Millbay, usually only uncovered at low water ; not uncommon on the sand and *Zostera* banks between Millbay and the Ferry House ; single specimens in the sand below Gazebo, in gravel on the south-east and in mud on the north-east shore of the Salstone, generally a foot or more below the surface (Allen & Todd, 1900, p. 207)

LUTRARIA MAGNA (da Costa) [*Jeffreys*, 1863, II, p. 430, as *L. oblonga*]

Fairly common in shelly gravel in the Sound (Ford, 1923 and 1925, as *L. oblonga*)

Order VENERACEA

Family Veneridae

MYSIA UNDATA (Pennant) [*Forbes and Hanley*, 1853, I, p. 435, as *Lucinopsis*]

Dead shells only (R.A.T.) : Rame E., Tregantle N.N.E., two living specimens trawled, 16.10.21 (J.H.O., E.F.)

DOSINIA EXOLETA (L.) [*Forbes and Hanley*, 1853, I, p. 428, as *Artemis*]

Occasionally from gravel S. of Drake's I. and in Millbay Ch. ; Yealm Sand-bank, not uncommon (R.A.T.) : Mewstone Gds. ; Stoke Pt. Gds. ; Rame-Eddystone Gds. ; etc. (s.p.) : Eddystone Gds. (E.J.A., s.p.) : one specimen S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 376) : common in shelly gravel, inside and outside Sound (Ford, 1923)

DOSINIA LUPINUS (L.) [*Jeffreys*, 1863, II, p. 330, as *Venus lincta*]

At five positions S.W. of Eddystone, 40-42 fms. (Crawshay, 1912, p. 376) : common in silty sand, inside and outside Sound (Ford, 1923)

GAFRARIUM (GOULDIA) MINIMUM (Montagu) [*Forbes and Hanley*, 1853, I, p. 446, as *Circe*]

Not uncommon on fine and medium gravel, 5-30 fms. ; Queen's Gd., occasionally ; Mewstone Gds. ; Stoke Pt. Gds. (s.p.) : Eddystone Gds. (E.J.A., s.p.) : at three positions S.W. of Eddystone, 42-46 fms. (Crawshay, 1912, p. 377) : not uncommon outside Sound in shelly gravel (Ford, 1923)

CALLISTA CHIONE (L.) [*Forbes and Hanley*, 1853, I, p. 396, as *Cytherea*]

Dead shells only (R.A.T.) : rare, outside Sound ; Whitsand B. (Ford, 1923, as *Meretrix*)

VENUS VERRUCOSA L. [*Forbes and Hanley*, 1853, I, p. 401]

Occasionally on mixed gravel grounds, 15-30 fms. ; Rame-Eddystone Gds. ; Mewstone Gds. ; etc. (s.p.) : Millbay Ch. ; Yealm Sand-bank (R.A.T.) : R. Yealm, S. side, six fine specimens just protruding out of the sand, on the patch of *Zostera* between Mashford's slip and the first corner going west, 1.4.15 (A.J.S.)

SALCOMBE. One specimen at extreme low-water mark, under Marine Hotel, 31.10.28 (G.A.S.)

VENUS CASINA L. [*Forbes and Hanley*, 1853, I, p. 405]

Occasionally on gravel grounds, 10-30 fms. (S.P.): at twelve positions S.W. of Eddystone, 42-46 fms. (Crawshay, 1912, p. 377): occasionally in Sound; one in muddy coarse shell-gravel, Eddystone, S.W. $\frac{3}{4}$ S. $1\frac{1}{2}$ miles, 9.5.23 (Ford, 1923)

CHIONE OVATA (Pennant) [*Forbes and Hanley*, 1853, I, p. 419, as Venus]

Moderately common in the Sound on muddy sand and gravel, and occasionally outside in 15-30 fms. (R.A.T.): from six positions S.W. of Eddystone, 40-46 fms. (Crawshay, 1912, p. 377): common on sand or shelly gravel, inside and outside Sound (Ford, 1923)

SALCOMBE. Two specimens, on *Zostera* of Salcombe Estuary and between Snape's Pt. and the mouth of the Harbour (Allen & Todd, 1900, p. 208)

CHIONE (CLAUSINELLA) FASCIATA (da Costa) [*Forbes and Hanley*, 1853, I, p. 415, as Venus]

Common on coarse gravel, particularly on muddy or sandy gravel, 6-30 fms.; Queen's Gd.; Mewstone Gds.; Stoke Pt. Gds.; Rame-Eddystone Gds.; Eddystone Gds. (S.P.): Yealm Sand-bank, occasionally between tide-marks (R.A.T.): from four positions S.W. of Eddystone, 44-46 fms. (Crawshay, 1912, p. 376): common in shelly gravel inside and outside Sound (Ford, 1923)

SALCOMBE. One or two lying on clean sand in Millbay (Allen & Todd, 1900, p. 208)

CHIONE (CHAMELAEA) STRIATULA (da Costa) [*Forbes and Hanley*, 1853, I, p. 408, as Venus]

Cawsand B., moderately common in sand; occasionally on the outside grounds, 15-30 fms.; Yealm Sand-bank, between tide-marks (R.A.T.): occasional specimens in the Sound, common on sandy grounds outside (Ford, 1923)

SALCOMBE. Living specimens lying on the surface of the clean sand at Gazebo and Millbay (Allen & Todd, 1900, p. 208)

PAPHIA (TAPES) AUREA (Gmelin) [*Forbes and Hanley*, 1853, I, p. 392]

Dead shells only (R.A.T.)

PAPHIA (TAPES) RHOMBOIDES (Pennant) [*Forbes and Hanley*, 1853, I, p. 388, as *Tapes virgineus*]

Common in gravel in Millbay Ch.; occasional specimens from Drake's I., Jennycliff B., the Breakwater, Reny Rks., and from the outside grounds in 15-30 fms. (R.A.T.): from seven positions S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 377): common in shell gravel, inside and outside Sound (Ford, 1923)

PAPHIA (TAPES) PULLASTRA (Montagu) [*Forbes and Hanley*, 1853, I, p. 382]

Occasionally between tide-marks and in dredgings from Sound; Yealm Sand-bank, common (R.A.T.): Rat I., near low water (E.P.): midway between Mallard Buoy and Batten Breakwater, common, 26.6.22 (Ford, 1923, p. 199)

SALCOMBE. By far the commonest bivalve on the Salstone, especially on the Western shore, lying on the surface of the muddy gravel, or buried to a depth of three or four inches ; a few on the other grounds, but nowhere so common as on the Salstone (Allen & Todd, 1900, p. 208)

PAPHIA (TAPES) SAXATILIS (Fleurian) [Jeffreys, 1863, II, p. 357, as *Tapes pullastra* var. *perforans*]

Moderately common between tide-marks where the rocks are bored by *Saxicava* (R.A.T.)

PAPHIA (RUDITAPES) DECUSSATA (L.) [Forbes and Hanley, 1853, I, p. 379]

Laira (A.J.S.) : Yealm Sand-bank, not uncommon (S.P.)

SALCOMBE. Several living specimens in muddy gravel to the north of Pilworthy Pt., and also in the bight below the Rectory (Southpool Lake), generally buried a few inches deep in the gravel (Allen & Todd, 1900, p. 207)

Order CARDIACEA

Family Cardiidæ

CARDIUM (ACANTHOCARDIA) ECHINATUM L. [Forbes and Hanley, 1853, II, p. 7]

Living specimens seldom obtained, 15-30 fms., although dead shells are moderately common ; Cawsand B., single specimen (R.A.T.) : Eddystone Gds., fresh dead shells are a characteristic feature of the fine sand of the 'Inner' and 'Outer' trawling gds. (E.J.A.) : at two positions, only one living, S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 377) ; very common, silty sand, inside and outside Sound, especially Bigbury Bay (Ford, 1923, and 1925, p. 547)

CARDIUM (ACANTHOCARDIA) TUBERCULATUM L. [Jeffreys, 1863, II, p. 273]

One young specimen, 9 mm. long, S.W. of Eddystone, 46 fms. (Crawshay, 1912, p. 377)

CARDIUM (CERASTODERMA) EDULE L. [Forbes and Hanley, 1853, II, p. 15]

Hamoaze, abundant in places ; occasional specimens from Laira, Drake's I. and Rum B. ; Yealm R., abundant just below Steer Pt. (A.J.S.) : common in Tamar up to Hole's Hole and in Lynher up to flats adjoining Ince Castle (E.P.)

Breeding : from R. Yealm, 23.3.12, eggs very nearly ripe, 3 kept overnight yielded fertilised eggs (J.H.O.) : Yealm River Bed, near Cockle bed, 21.4.20, ripe eggs not very abundant, artificially fertilised eggs developed so far as 4 cell stage (H.O.)

SALCOMBE. Commonest on the Salstone, lying on or near the surface of the muddy gravel on the west and south-east shores, and of the fine mud on the north-east ; also on several other grounds, especially in the Kingsbridge estuary (Allen & Todd, 1900, p. 208)

CARDIUM (PARVICARDIUM) SCABRUM Philippi [Jeffreys, 1863, II, p. 283, as *C. nodosum*]

Occasionally in shell gravel inside and outside Sound (Ford, 1923) : in about 30 fms. near Hand Deep, Eddystone (R.W.)

CARDIUM (PARVICARDIUM) OVALE Sowerby [Jeffreys, 1863, II, p. 281, as *C. fasciatum*]

Occasionally in coarse sandy mud, outside Sound (Ford, 1923, as *C. fasciatum*) : not uncommon in Sound (R.W.)

Breeding : one from Sound, ca. 5-6 mm. extruded ripe ova 2.7.20 (J.H.O.)

LAEVICARDIUM CRASSUM (Gmelin) [*Forbes and Hanley*, 1853, II, p. 35, as *Cardium norvegicum*]

Common on gravel, 15-30 fms. ; West Ch. and Queen's Gd., occasionally ; Mewstone Ledge, moderately common in the patches of gravel between the rocks ; Mewstone 'Amphioxus' Gd. ; Rame-Eddystone Gds. ; etc. (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : from five positions S.W. of Eddystone 42-45 fms. (Crawshay, 1912, p. 377) : on clean shell gravel, Mewstone and Eddystone Gds. (Ford, 1923)

SALCOMBE. One shell dredged in Salcombe Harbour (Allen & Todd 1900, p. 208)

Order MYACEA

Family Myidae

MYA TRUNCATA L. [*Forbes and Hanley*, 1863, I, p. 163]

Single specimen once, four small specimens another time, Yealm Sand-bank ; on the S. side of the River Yealm there is a good bed about 100 yards long starting a few yards west of Mashford's slip up to the first corner going West, towards the mouth of the river (A.J.S.) : S. shore of Yealm seawards of Ferry House, abundant at level of l.w. ordinary springs in gravelly soil adjacent to but east of *Zostera* bed (J.H.O.) : occasionally in mud in Sound (Ford, 1923)

Family Erodonidae

ALOIDIS GIBBA (Olivi) [*Forbes and Hanley*, 1853, I, p. 180, as *Corbula nucleus* and *C. rosea*]

Jennycliff B. ; Cawsand B. ; occasionally (R.A.T., S.P.) : Mewstone Gds. ; Stoke Pt. Gds. ; Rame-Eddystone Gds., not uncommon on muddy gravel (S.P.) : very common in patches of silty sand, outside Sound (Ford, 1923)

Order SOLENACEA

Family Solenidae

SOLEN MARGINATUS Montagu [*Forbes and Hanley*, 1853, I, p. 242]

Drake's I., occasionally on muddy sand N. of the Island (S.P.) : Yealm Sand-bank (R.A.T.)

SALCOMBE. Characteristic of the sand and *Zostera* banks between Millbay and the Ferry House, burrowing to a depth of 18 inches or so (Allen & Todd, 1900, p. 206, as *S. vagina*)

ENSIS ENSIS (L.) [*Jeffreys*, 1865, III, p. 16, as *Solen*]

Yealm Sand-bank, very common ; Drake's I., not uncommon in sand at the N.E. corner ; sandy patch S. of Batten Castle ; Cawsand B. ; etc. (R.A.T.) : common in clean sand, inside and outside Sound (Ford, 1923)

SALCOMBE. A few shells only (Allen & Todd, 1900, p. 206) : plentiful in gravelly sand near Ferry House, 1923 (R.W.)

ENSIS SILIQUA (L.) [Jeffreys, 1865, III, p. 18, as Solen]

Dead shells only (R.A.T.): common in Whitsand B. (M.V.L.)

ENSIS ARCUATA Jeffreys [1865, III, p. 19, as *Solen siliqua* var. *arcuata*]

Not common; inside and outside Sound (Ford, 1923)

CULTELLUS (PHAXAS) PELLUCIDUS (Pennant) [Jeffreys, 1865, III, p. 14, as Solen]

Jennycliff B.; Cawsand B.; common (R.A.T., S.P.): Mallard Sh., in sandy mud (S.P.): from S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 378): very common in silty sand, inside and outside Sound (Ford, 1923 and 1925)

SALCOMBE. Several specimens lying on the surface of the sand at Millbay just after the tide had turned, having come out of their holes; one large specimen from the mud on the N.E. of the Salstone (Allen & Todd, 1900, p. 206)

PSAMMOLEN CANDIDUS (Renier) [Jeffreys, 1865, III, p. 3, as Solecurtus]

Eddystone Gds., single specimen (R.A.T.): occasionally in shelly gravel outside Sound (Ford, 1923, as *S. scopula*)

PSAMMOLEN (AZOR) CHAMASOLEN (da Costa) [Jeffreys, 1865, III, p. 6, as *Solecurtus antiquatus*]

Jennycliff B., single specimen; 4 m. W. by S. of Rame Hd., single specimen; dead shells not uncommon 2-4 m. S.W. of Rame Hd. (R.A.T.) occasionally in silty, solid, black mud, inside and outside Sound (Ford, 1923)

Family **Hiatellidae**

HIATELLA ARCTICA (L.) (including *rugosa*) [Forbes and Hanley, 1853, I, p. 141, as *Saxicava*]

Mewstone Gds.; Rame-Eddystone Gds. (R.A.T.): Eddystone Gds., on all grounds, attached to shells, the roots of hydroids, etc. (E.J.A.): generally distributed, boring in limestone, etc., L.W.-20 fms. (R.A.T.): from several positions S.W. of Eddystone, 40-50 fms. (Crawshay, 1912, p. 378)

SALCOMBE. Two specimens attached to stones in dredge between Salstone and mouth of Harbour (Allen & Todd, 1900, p. 205)

Order PHOLADACEA

Family **Gastrochaenidae**

GASTROCHAENA DUBIA (Pennant) [Forbes and Hanley, 1853, I, p. 132, as *G. modiolina*]

The Breakwater, boring in limestone; Asia Sh.; Millbay Ch. and Pit; Yealm R., single specimen boring in an oyster shell (R.A.T.): Mewstone Ledge, dredged, broken out of a red sandstone rock; Eddystone Gds., dredged, in red sandstone with calcareous syphon tubes shewing; Stoke Pt. Gds. (A.J.S.)

Family **Pholadidae**

PHOLAS DACTYLUS L. [Forbes and Hanley, 1853, I, p. 108]

Rum B., common in particular patches of shale rock (R.A.T., A.J.S.)

SALCOMBE. Recent shells, some over five inches in length, in mud between Garston Pt. and the Salstone (Allen & Todd, 1900, p. 205)

BARNEA PARVA (Pennant) [*Forbes and Hanley*, 1853, I, p. 111, as *Pholas*]

Rum B., common (R.A.T.)

PHOLADIDEA LOSCOMBIANA Turton [*Forbes and Hanley*, 1853, I, p. 123, as *P. papyracea*]

Rum B., common at low tide (R.A.T.): abundant in the red rock of the Mewstone Ledge, Stoke Pt., etc., 10-20 fms. (S.P.)

XYLOPHAGA DORSALIS (Turton) [*Jeffreys*, 1865, III, p. 120]

Eddystone bearing W.S.W. 4 miles, from a piece of wood which came up in the trawl (A.J.S.): occasionally on all grounds in sunken wood (G.A.S.)

Family **Teredinidae**

TEREDO NAVALIS L. [*Forbes and Hanley*, 1853, I, p. 74]

Not uncommon in drift and submerged wood (R.A.T.)

Breeding: July (W.G.)

TEREDO NORVEGICA Spengler (*Jeffreys*, 1865, III, p. 168]

Cawsand B. (R.W.): in piles of the R.N. Barracks pier (J.H.O.)

Breeding: Pier Cellars jetty, all individuals examined over 3 inches long contained ripe sexual products, 6.8.21 (C.R.H.): gonads ripe Mar.-Nov. (C.M.Y.)

Order PANDORACEA

Family **Pandoridae**

PANDORA INAEQUIVALVIS (L.) [*Forbes and Hanley*, 1853, I, p. 207, as *P. rostrata*, p. 210, as *P. obtusa*]

Cawsand B., occasionally (R.A.T.): Rame-Eddystone Gds. (R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): Stoke Pt. Gds. (S.P.)

Family **Lyonsiidae**

LYONSIA NORVEGICA (Gmelin) [*Forbes and Hanley*, 1853, I, p. 214]

Cawsand B., occasionally (R.A.T.): single specimen off Stoke Pt. (E.J.A.): one pair of dead valves S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 378): rare in silty sand, outside grounds (Ford, 1923)

Family **Thraciidae**

THRACIA PAPYRACEA (Poli) [*Forbes and Hanley*, 1853, I, p. 221, as *T. phaseolina*]

Single specimen S. of Batten Castle, in sand (R.A.T.): Jennycliff B. one live specimen in mud, with *Thyasira flexuosa* (K.H.B.)

SALCOMBE. One living specimen lying on the sand at Millbay (Allen & Todd, 1900, p. 206)

THRACIA PUBESCENS (Montagu) [*Jeffreys*, 1865, III, p. 38]

Dead shells only (R.A.T.): Rame-Eddystone Gds., otter-trawl, two alive and several empty shells (K.H.B.)

THRACIA CONVEXA (Wood) [*Jeffreys*, 1865, III, p. 39]

One specimen, Rame Hd., N.E. by E., $\frac{1}{2}$ E., $1\frac{1}{2}$ miles in coarse muddy sand (Ford, 1923, p. 219) : Rame-Eddystone Gds., one dead shell (K.H.B.)

THRACIA (IXARTIA) DISTORTA (Montagu) [*Jeffreys*, 1865, III, p. 41]

Mewstone Ledge, in red conglomerate, many shells (R.W.)

Class **SCAPHOPODA**Family **Dentaliidae****DENTALIUM ENTALIS** L. [*Jeffreys*, 1865, III, p. 191]

Not uncommon on the fine sand grounds, 15-30 fms. (R.A.T., S.P.) : Eddystone Gds., on all fine sand grounds except the 'Outer' trawling ground, and occasionally on gravel (E.J.A.) : Rame bearing N. $\frac{1}{2}$ W., 3 miles, 48 specimens, dredge (A.J.S.) : from eight positions S.W. of Eddystone 40-43 fms. (Crawshay, 1912, p. 372)

Class **GASTROPODA**

Order ARCHAEOGASTROPODA

Family **Patellidae****PATELLA VULGATA** L. [*Jeffreys*, 1865, III, p. 236]

More or less abundant everywhere on rocks between tide-marks (R.A.T.) : Mt. Edgcumbe, very large specimens (A.J.S.) : occasionally in mud-bank above Saltash Bridge (L. bank) St John's Lake, not common (E.P.)

Breeding : artificial fertilisations successful, Nov. and Dec. 1909 (E.W.N.) : 28.1.14, artificial fertilisations successful (J.H.O.) : 1.10.20, of about 150 from rocks below Laboratory many spent, several unripe (A.J.S.) : 20.3.20, ripe specimens from Rum B. successful fertilisations, larvae reared to shell stage (J.H.O.) : Mar. 20th to April 2nd, 1920, in early part of period it was easy to get both sexes ripe, in later part (Mar. 30th to Apr. 2nd) ripe specimens found with difficulty, especially females, fertilisations successful (H.O.)

PATELLA DEPRESSA Pennant [*Jeffreys*, 1865, III, p. 237, as *P. intermedia*]

Looe (R.W.)

PATELLA ATHLETICA Bean [*Forbes and Hanley*, 1853, 88, p. 425]

Cawsand (R.W.) But see Orton, *Journ. M.B.A.*, XV., p. 860.

PATINA PELLUCIDA (L.) [*Jeffreys*, 1865, III, p. 242, as *Helcion*]

On stems of *Laminaria*, common everywhere, especially Reny Rks. and the Bridge (R.A.T.)

Family **Acmaeidae****ACMAEA VIRGINEA** (Müller) [*Forbes and Hanley*, 1853, II, p. 437]

More or less common under stones on all rocky shores, L.W.-5 fms., gregarious : Drake's I., large specimens (S.P.) : moderately common in dredgings from the Yealm (R.A.T.)

SALCOMBE. Not uncommon in dredged material (Allen & Todd, 1900, p. 210)

Family **Fissurellidae**

EMARGINULA FISSURA (L.) [*Forbes and Hanley*, 1853, II, p. 477, as *E. reticulata* and *E. mülleri*]

Millbay Ch. ; Queen's Gd. (S.P.) : the Breakwater, between tide-marks (R.A.T.) : Mewstone Ledge ; occasional specimens on the outside grounds in 15-30 fms. (R.A.T., S.P.) : Eddystone Gds., constantly present, but seldom numerous, on all grounds where shells are plentiful (E.J.A.) : one specimen each at two positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 368)

SALCOMBE. One attached to a shell from the " Bag " (Allen & Todd, 1900, p. 210)

EMARGINULA CONICA Schumacher [*Forbes and Hanley*, 1853, II, p. 479, as *E. rosea*]

Not uncommon, 10-30 fms. (S.P.) : Wembury B., W. shore, male with seething sperm, 12.10.11, shell 10 by 7.5 mm. (J.H.O.)

DIODORA APERTURA (Montagu) [*Forbes and Hanley*, 1853, II, p. 469, as *Fissurella reticulata*, recorded as *Fissurella graeca* in 1904 fauna list]

Occasional specimens on all rocky stations, L.W.-10 fms. (S.P.) : occasionally between tide-marks ; the Breakwater ; Reny Rks. ; the Mewstone ; Church Reef, Wembury B. ; not uncommon in dredgings from the Yealm R. (R.A.T.)

Breeding : from Cawsand B. shore (Farmer's Cellars), 16.1.07, ripe eggs extruded ; shore N. side of Drake's I., 17.1.11, one female quite ripe, one male not quite ripe ; from Asia Sh., 28.12.11 eggs, laid (A.J.S.) : Wembury, 2-3.4.12, male with sperm practically ripe (J.H.O.)

SALCOMBE. Fairly common in dredge stuff, especially off Tosnos Pt., feeding on Ascidians, sponges, etc. ; one on the Salstone (Allen & Todd, 1900, p. 210)

Family **Trochidae**

MARGARITES GROENLANDICUS (Gmelin) [*Forbes and Hanley*, 1853, II, p. 528, as *Trochus undulatus*]

A single specimen, possibly merely an empty shell, 3 m. S.W. Penlee Pt. (R.A.T.)

GIBBULA MAGUS (L.) [*Jeffreys*, 1865, III, p. 305, as *Trochus*]

Uncommon at Plymouth, occurring only on coarse shell-sand or gravel ; Queen's Gd. ; between the Knap and Panther Buoys, four very large specimens (S.P.) : Millbay 'shell-gravel' Gd. ; Mewstone 'Amphioxus' Gd. (R.A.T.)

SALCOMBE. Common in dredgings between Salstone and the mouth of the Harbour : except the gravel in the " Bag " ; a few on sand at Millbay (Allen & Todd, 1900, p. 210)

GIBBULA TUMIDA (Montagu) [*Forbes and Hanley*, 1853, II, p. 513, as *Trochus*]

Occasional specimens from the Rame-Eddystone, Eddystone, Stoke Pt., and other outside grounds (S.P.) : one specimen S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 368)

GIBBULA CINERARIA (L.) [*Forbes and Hanley*, 1853, II, p. 516, as *Trochus*]

Abundant nearly everywhere, between tide-marks-10 fms., under stones, on *Zostera*, *Fucus*, etc. (S.P.)

SALCOMBE. Common in dredge material and most probably at higher tidal levels everywhere on the shore although only recorded from the west shore of Salstone (Allen & Todd, 1900, p. 210)

GIBBULA UMBILICALIS (da Costa) [*Forbes and Hanley*, 1853, II, p. 519, as *Trochus umbilicatus*]

Common at most stations, but not so abundant as *G. cineraria* and occurs at a rather higher level, H.W.-3 fms. (S.P.)

SALCOMBE. Not recorded from dredgings; probably ubiquitous at higher tidal levels (Allen & Todd, 1900, p. 210)

OSILINUS LINEATUS (da Costa) [*Jeffreys*, 1865, III, p. 317, as *Trochus*=*Monodonta crassa* of the 1904 Fauna List]

The distribution of this species at Plymouth appears to be a very limited one, but it is met with in some numbers upon restricted areas of the rocks, at and above high-water mark, at those stations where it occurs; N.E. Drake's I.; Blackstone Rks., Wembury B.; Yealm Sand-bank (S.P.)

CALLIOSTOMA ZIZYPHINUM (L.) [*Forbes and Hanley*, 1853, II, p. 491, as *Trochus*]

Common under stones and in crevices on all rocky shores at low water; a dwarf var. is not uncommon in the deeper water of the outside grounds (S.P.): Yealm R., a characteristic var. is common on the Sand-bank (R.A.T.): at five positions S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 368)

Breeding: in tanks, 11.4.12, eggs nearly ripe (J.H.O.)

SALCOMBE. Occasional specimens everywhere (Allen & Todd, 1900, p. 210)

CALLIOSTOMA PAPILLOSUM (da Costa) [*Forbes and Hanley*, 1853, II, p. 499, as *Trochus granulatus*]

Moderately common on sandy gravel, 20-30 fms., (S.P.): Mewstone 'Echinoderm' Gd., common (R.A.T.): Eddystone Gds., on gravel with sand or muddy sand (E.J.A.): at three positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 368)

CANTHARUS (JUBUBINUS) MONTAGUI (W. Wood) [*Forbes and Hanley*, 1853, II, p. 511; and *Jeffreys*, 1865, III, p. 320, as *Trochus*]

One dead shell S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 368)

CANTHARUS (JUBUBINUS) STRIATUS (L.) [*Forbes and Hanley*, 1853, II, p. 508, as *Trochus*]

Occasionally; Cawsand B.; Jennycliff B.; Yealm Est., common on *Zostera* (R.A.T.): one dead shell S.W. of Eddystone, 45 fms. (Crawshay, 1912, p. 368)

SALCOMBE. Not uncommon in dredgings from between Snape's Pt. and mouth of Harbour, very common on the *Zostera* under the Marine Hotel (Allen & Todd, 1900, p. 210)

CANTHARUS (JUBUBINUS) EXASPERATUS (Pennant) [*Forbes and Hanley*, 1853, II, p. 505 as *Trochus exiguus*]

Probably this species from two positions S.W. of Eddystone, 43-47 fms. (Crawshay, 1912, p. 368)

Family **Turbinidae**

TRICOLIA PULLUS (L.) [*Forbes and Hanley*, 1853, II, p. 538, as *Phasianella pullus*]

More or less common everywhere on Algae and *Zostera*, L.W.-10 fms.; common among weed growing on ships' bottoms, buoys, etc. (S.P.): Queen's Gd.; Jennycliff B.; Cawsand B.; etc. (R.A.T., S.P.)

SALCOMBE. One dredged in channel between Snape's Pt. and Salstone (Allen & Todd, 1900, p. 211)

Order MESOGASTROPODA

Family **Littorinidae**

LACUNA VINCTA (Montagu) [*Forbes and Hanley*, 1853, III, p. 62]

Common on *Fucus*-covered rocks near low-water mark (S.P.): rocks below the Hoe, large specimens moderately common; smaller specimens common on the *Zostera* in Jennycliff B., Cawsand B., and Yealm Est.; 1 m. S. of the Mewstone, very occasionally (R.A.T.)

Breeding: Feb.-Apr. (R.A.T.)

LACUNA PARVA (da Costa) [*Forbes and Hanley*, 1853, III, p. 58, as *L. puteolus*]

Cawsand B. (R.A.T., S.P.)

LACUNA PALLIDULA (da Costa) [*Forbes and Hanley*, 1853, III, p. 56]

Not uncommon on *Fucus*-covered rocks under the Hoe (R.A.T.)

Breeding: Feb. (R.A.T.)

LITTORINA LITTORALIS (L.) [*Forbes and Hanley*, 1853, III, p. 45=*L. obtusata* of 1904 List]

Abundant everywhere on *Fucus*, *Zostera*, etc. (S.P.): common in Tamar, live specimens as far up as Neille Pt., dead shells at Cargreen on bank below village; common in Lynher, as far as Antony Creek (E.P.)

Breeding: Feb. (W.G.): Mar. (S.P.)

SALCOMBE. Probably common everywhere on the shore at higher levels where there is any weed or stone (Allen & Todd, 1900, p. 210)

LITTORINA NERITOIDES (L.) [*Jeffreys*, 1865, III, p. 361]

Abundant on rocks above high-water mark (S.P.)

LITTORINA RUDIS (Maton) [*Jeffreys*, 1865, III, p. 364]

Very abundant on all rocky shores near high-water mark (S.P.): R. Tamar, St. John's Lake, R. Lynher up to shore above Ince Castle, not common (E.P.)

LITTORINA LITTOREA (L.) [*Jeffreys*, 1865, III, p. 368]

Not uncommon between tide-marks on most shores, but seldom in any quantity; this form occurs at a lower zone than *L. rudis* (S.P.): St. John's Lake, abundant; Yealm R., common (A.J.S.): common in Tamar as far as Neille Pt., opposite Tavy; common in Lynher as far as Antony Creek (E.P.)

Breeding : Feb. (w.g.) : Apr. 12-22, 1920, nearly all ripe, artificial fertilisations not successful ; larvae in plankton, Apr. 5th, probably this species (H.O.) : eggs in tank, 11.1.23 (A.J.S.)

Family Rissoiidae

RISSOA PARVA (da Costa) [*Forbes and Hanley*, 1853, III, p. 98]

Moderately common in the Sound between tide-marks ; occasionally in dredgings from Millbay Ch., Asia Sh., etc. (R.A.T.)

Breeding : egg-capsules on *Zostera* laid in finger-bowl, Nov. 1930 (M.V.L.)

SALCOMBE. One specimen only was taken in the dredge, between Snape's Pt. and the mouth of the harbour (Allen & Todd, 1900, p. 211)

RISSOA MEMBRANACEA (J. Adams) [*Forbes and Hanley*, 1853, III, p. 109, as *R. labiosa*]

Common on *Zostera* (s.p.) : Cawsand B., very common ; Yealm Estuary, moderately common (R.A.T.)

Breeding : egg-capsules on *Zostera* laid in plunger-jar, Nov., Dec. 1930 (M.V.L.)

SALCOMBE. Generally taken when working the cheese-cloth trawl on the *Zostera* banks (Allen & Todd, 1900, p. 210)

RISSOA GUERINI Récluz [*Jeffreys*, 1867, IV, p. 35, as *R. costulata*]

Dead, Looe Is. (R.W.)

ALVANIA CANCELLATA (da Costa) [*Forbes and Hanley*, 1853, III, p. 80, as *Rissoa crenulata*]

Dead shells only (R.A.T.)

ALVANIA CIMICOIDES Forbes [*Forbes and Hanley*, 1853, III, p. 88, as *R. sculpta* = *A. reticulata* of 1904 Fauna List]

Dead shells only (R.A.T.)

ARSENIA PUNCTURA (Montagu) [*Jeffreys*, 1867, IV, p. 17, as *Rissoa*]

Living, Looe Is. ; dead, Eddystone (R.W.)

MANZONIA ZETLANDICA (Montagu) [*Jeffreys*, 1867, IV, p. 20, as *Rissoa*]

Dead shells only, Eddystone (R.W.)

MANZONIA CRASSA Kanmacher [*Jeffreys*, 1867, IV, p. 22, as *Rissoa costata*]

Drake's I. ; Millbay Pit ; occasionally (R.A.T.)

CINGULA CINGILLUS (Montagu) [*Forbes and Hanley*, 1853, III, p. 122, as *Rissoa*]

Common between tide-marks on all rocky shores, gregarious under stones and in crevices, especially where there is a certain amount of silt ; Yealm Sand-bank (s.p.)

CINGULA SEMISTRIATA (Montagu) [*Forbes and Hanley*, 1853, III, p. 117, as *Rissoa*]

Millbay Pit (R.A.T.) : Looe, gregarious among *Fucus vesiculosus*, in young growth on rocks (R.W.) : two specimens, Asia Sh. ; three specimens, Mewstone Ledge (R.P.)

ONOA CANDIDA (Brown) [*Forbes and Hanley*, 1853, III, p. 94, as *Rissoa striata*]

Common on all rocky shores, gregarious under stones, particularly where there is a certain amount of silt, L.W.-10 fms. (S.P.)

ONOA PROXIMA (Alder) [*Forbes and Hanley*, 1853, III, p. 127, as *Rissoa*]

Dead shells only (R.A.T.)

ONOA VITREA (Montagu) [*Forbes and Hanley*, 1853, III, p. 125, as *Rissoa*]

Dead shells only (R.A.T.)

PARVISETIA FULGIDA (J. Adams) [*Jeffreys*, 1867, IV, p. 43, as *Rissoa*]

Reny Rks., between tide-marks, on *Plumularia* sp. (R.P.)

GALEODINA CARINATA (da Costa) [*Forbes and Hanley*, 1853, III, p. 73, as *Rissoa striatula*]

Dead shells (R.A.T.)

BARLEEIA RUBRA (Montagu) [*Jeffreys*, 1867, IV, p. 56]

From tow-nettings, found in a dish in which *Actinia* young were being reared on plankton, ova practically mature, 27.7.20 (J.H.O. and R.W.)

Family **Assimineidae**

HYDROBIA ULVAE (Pennant) [*Jeffreys*, 1867, IV, p. 52]

Common in brackish water, Hamoaze, Hooe Lake, etc. (R.A.T.) : common in Tamar, extends as far as North Hove ; common in Lynher as far as Antony Creek (E.P.)

HYDROBIA JENKINSI Smith [1889, p. 142]

Wembury, in a stream running to the beach, below the church, 4.9.29, on stones and weed ; young fully formed and being ejected ; specimens adult, half grown and newly born (E.A.E.)

Family **Tornidae**

TORNUS SUBCARINATUS (Montagu) [*Forbes and Hanley*, 1853, II, p. 541, as *Adeorbis*]

Ram's Cliff Pt., common on rocks at low tide, Aug. 1887 (W.H.)

Family **Skeneopsidae**

SKENEOPSIS PLANORBIS (Fabricius) [*Forbes and Hanley*, 1853, III, p. 156, as *Skenea*]

Common among the roots of seaweeds, and corallines, rocks under the Hoe ; Drake's I. ; etc. (R.A.T.)

Family **Capulidae**

CAPULUS UNGARICUS (L.) [*Jeffreys*, 1865, III, p. 269, as *C. hungaricus*]

Occasionally on gravel grounds, 15-35 fms., generally attached to *Chlamys opercularis* (S.P.) : Mewstone Gds., occasionally on *C.*

opercularis (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : single dead shells from three positions S.W. of Eddystone, 40-44 fms. (Crawshay, 1912, p. 369)

Breeding : Jan.-Mar. (W.G.)

CALYPTRAEA CHINENSIS (L.) [*Jeffreys*, 1867, III, p. 273]

The Sound, common in dredgings on stony ground, attached to stones, shells, etc. ; Asia Sh. ; Millbay Ch. ; the Bridge ; etc. (S.P.) : Yealm R., always present in dredgings ; Cawsand B. ; etc. (R.A.T.) : Yealm Sandbank, between tide-marks (S.P.) : very common, Asia Sh., Aug. and Oct. 1911 (J.H.O.)

Breeding : July (R.A.T.) : Aug.-Sept. (S.P.)

SALCOMBE. Very common in dredge material, especially from between Snape's Pt. and the Salstone (Allen & Todd, 1900, p. 210)

Family **Cypraeidae**

TRIVIA EUROPAEA (Montagu) [*Forbes and Hanley*, 1853, III, p. 495, as *Cypraea*]

More or less abundant everywhere, particularly on rocky or stony ground, L.W.-30 fms. ; the form occurring in deeper water is usually small and has a smooth fawn coloured mantle (S.P.) : single specimens at two positions S.W. of Eddystone, 43-47 fms. (Crawshay, 1912, p. 369) : Mussel Bed off Neille Pt., opposite Tavy, R. Tamar (E.P.)

SALCOMBE. Fairly common in dredge material and on rough ground between tide-marks, e.g. Salstone, under the lime kiln, etc. (Allen & Todd, 1900, p. 212)

SIMNIA PATULA (Pennant) [*Jeffreys*, 1867, IV, p. 407, as *Ovula*]

Not uncommon on *Alcyonium digitatum* 10-30 fms. ; Mewstone Ledge ; Stoke Pt. Gds. ; etc. (S.P.) : Mewstone Ledge, on Eunicella (W.I.B.) : at five positions S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 369)

Spawn probably belonging to this species has been found in Apr., June-July (R.A.T.)

ERATO LAEVIS (Donovan) [*Jeffreys*, 1867, IV, p. 400, as *Marginella*]

Not uncommon on gravel grounds, 15-30 fms. (S.P.) : one dead shell S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 369)

Family **Naticidae**

NATICA (LUNATIA) CATENA (da Costa) [*Jeffreys*, 1867, IV, p. 220]

On sandy bottoms (W.G.) : rare (S.P.)

Breeding : Apr. (W.G.)

NATICA (LUNATIA) ALDERI Forbes [*Jeffreys*, 1867, IV, p. 224]

Not uncommon on clean sand and gravel L.W.-35 fms. (S.P.) : Drake's I., sand-patch at N. End, occasionally ; Cawsand B., not uncommon ; Mewstone 'Echinoderm' Gd. ; Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (S.P.) : Eddystone Gds. (E.J.A., S.P.) : Yealm R., on the sand-bank opposite the Coastguard station (R.A.T.) : at four positions S.W. of Eddystone, three alive, two dead (Crawshay, 1912, p. 369)

Breeding : June (R.A.T.)

Family **Lamellariidae**

LAMELLARIA PERSPICUA (L.) [*Forbes and Hanley*, 1853, III, p. 355 ; p. 358, as *L. tentaculata*]

Not uncommon between tide-marks and in dredgings from the Sound, etc. (S.P.) : occasionally on the outside grounds, 15-30 fms. (R.A.T., W.I.B., S.P.) : Yealm R., not uncommon (R.A.T., S.P.) : at two positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 369)

Spawn : Jan.-May (W.G.) : Echinospira, the planktonic larva, is common in tow-nettings in spring and summer (M.V.L.)

SALCOMBE. A few specimens dredged between the Salstone and Snape's Pt. (Allen & Todd, 1900, p. 211)

VELUTINA VELUTINA (O. F. Müller) [*Jeffreys*, 1867, IV, p. 240, as *V. laevigata*]

Mewstone 'Echinoderm' Gd. (R.A.T.)

Breeding : the larva is common in tow-nettings in spring and summer ; young obtained from the larva in finger-bowl, March, 1930 (M.V.L.)

Family **Cerithiidae**

BITTIUM RETICULATUM (da Costa) [*Jeffreys*, 1867, IV, p. 258, as *Cerithium*]

Not uncommon under stones on rocky shores, L.W.-10 fms. (S.P.)

SALCOMBE. One or two generally taken in the cheese-cloth trawl on the Zostera banks (Allen & Todd, 1900, p. 211)

TRIPHORA PERVERSA (L.) [*Forbes and Hanley*, 1853, III, p. 195, as *Cerithium adversum*]

Occasional specimens not uncommon ; Eddystone Gds. ; Rame-Eddystone Gds. ; Mewstone Gds. ; Stoke Pt. Gds. ; (S.P.)

Larva in plankton in summer (M.V.L.)

CERITHIOPSIS TUBERCULARIS (Montagu) [*Forbes and Hanley*, 1853, III, p. 365]

Not uncommon in dredgings from the Sound, generally on sponges ; occasionally on the outside grounds in 15-30 fms. ; Yealm R., common on red sponge (R.A.T.)

SALCOMBE. One in the dredgings from west of Salstone, and several from between Salstone and Snape's Point (Allen & Todd, 1900, p. 211)

CERITHIOPSIS BARLEEI Jeffreys [*Jeffreys*, 1867, IV, p. 268]

Common living in *Ficulina ficus* (R.W.)

CERITHIOPSIS PULCHELLA Jeffreys [*Jeffreys*, 1867, IV, p. 269]

Shell only, ca. 30 fms., near Hand Deep, Eddystone (R.W.)

Family **Epitoniidae**

CLATHRUS TURTONIS (Turton) [*Forbes and Hanley*, 1853, III, p. 204, as *Scalaria* = *Scala turtoni* in 1904 Fauna List]

Stoke Pt. Gds. (S.P.) : one specimen S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 369)

CLATHRUS CLATHRUS (L.) [*Forbes and Hanley*, 1853, III, p. 206, as *Scalaria communis*]

One specimen S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 369)

SALCOMBE. Five specimens taken at Salstone, four from the south-east shore, and the other from the south-west (Allen & Todd, 1900, p. 211)

CLATHRUS CLATHRATULUS (Adams) [*Forbes and Hanley*, 1853, III, p. 209, as *Scalaria*]

Dead shells only (R.A.T.): Rum B. in cracks of rocks and between stones at low tide, three living specimens (C.L.W.)

ACLIS MINOR BROWN [*Jeffreys*, 1867, IV, p. 103, as *A. supranitida*]

One, living, 25 fms., Rame N. 2½ m. (R.W.)

Family **Pyramidellidae**

ODOSTOMIA CONOIDEA (Brocchi) [*Jeffreys*, 1867, IV, p. 127]

Shells only off Rame (R.W.)

SALCOMBE. One taken in the dredge west of the Salstone (Allen & Todd, 1900, p. 211, as *O. eulimoides*)

ODOSTOMIA ACUTA Jeffreys [1867, IV, p. 130]

Shells only, off Eddystone (R.W.)

ODOSTOMIA UNIDENTATA (Montagu) [*Forbes and Hanley*, 1853, III, p. 264]

Shells only, off Eddystone (R.W.)

ODOSTOMIA (BRACHYSTOMIA) EULIMOIDES Hanley [*Forbes and Hanley*, 1853, III, p. 273=*B. ambigua* of 1904 Fauna List]

Common on the ears of *Chlamys opercularis* (R.A.T., S.P.): on *P. maximus* (R.A.T.)

PYRGULINA DECUSSATA (Montagu) [*Jeffreys*, 1867, IV, p. 145, as *Odostomia*]

Shells only, off Eddystone (R.W.)

PYRGULINA INDISTINCTA (Montagu) [*Jeffreys*, 1867, IV, p. 149, as *Odostomia*]

Shells only, off Eddystone (R.W.)

PYRGULINA OBTUSA (Brown) [*Jeffreys*, 1867, IV, p. 151, as *Odostomia interstincta*]

Shells only, off Eddystone (R.W.)

TRAGULA FENESTRATA (Forbes) [*Forbes and Hanley*, 1853, III, p. 249]

Cawsand B., one dead (K.H.B.)

TURBONILLA (PYRGISCUS) RUFA (Philippi) [*Forbes and Hanley*, 1853, III, p. 245, as *Chemnitzia*=*Pyrgostelis interrupta* of 1904 Fauna List]

Rame-Eddystone Gds., occasionally (S.P.)

TURBONILLA LACTEA (L.) [*Jeffreys*, 1867, IV, p. 164, as *Odostomia*]

Occasionally under stones, particularly where there is a certain amount of silt, L.W.-10 fms.; Drake's I.; Jennycliff B.; etc. (S.P.): Asia Sh.; Wembury B. (R.A.T., S.P.)

SALCOMBE. Very common on the *Zostera* south of Pilworthy Pt. (Allen & Todd, 1900, p. 211, as *Chemnitzia elegantissima*)

Family **Eulimidae**

EULIMA ALBA (da Costa) [*Jeffreys*, 1867, IV, p. 201, as *E. polita*]

Not uncommon on muddy gravel, 15-35 fms. (S.P.): Mewstone 'Amphioxus' ground, not uncommon; Mewstone Ledge, occasionally; Stoke Pt. Gds.; Rame-Eddystone Gds. (R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): single specimens at two positions S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 369)

EULIMA PERNULA Monterosato [*Sykes*, 1903, p. 352]

One, apparently living, off Eddystone (R.W.)

EULIMA PHILIPPI (Rayn and Ponzi) [= *E. distorta* auctt., nec Deshayes: *Sykes*, 1903, p. 350, as *E. incurva*]

Common among sponges, etc.; Millbay Pit; Asia Sh.; Mallard Sh.; Yealm R.; etc. (S.P.)

STROMBIFORMIS BILINEATUS (Alder) [*Forbes and Hanley*, 1853, III, p. 237]

Occasionally; Rame-Eddystone Gds.; Eddystone Gds.; etc. (S.P.)

STROMBIFORMIS GLABER (da Costa) [*Forbes and Hanley*, 1853, III, p. 235, as *E. subulata*]

Occasionally; Millbay Pit; Mewstone Gds.; etc. (S.P.)

Family **Caecidae**

CAECUM IMPERFORATUM (G. Adams) [*Forbes and Hanley*, 1853, III, p. 178, as *C. trachea*]

Dead shells only (R.A.T.)

CAECUM GLABRUM (Montagu) [*Forbes and Hanley*, 1853, III, p. 181]

Dead shells only (R.A.T.)

Family **Turritellidae**

TURRITELLA COMMUNIS Lamarck [*Jeffreys*, 1867, IV, p. 80, as *T. terebra*]

Common in places, on muddy and sandy gravel, 15-30 fms. (S.P.): Mewstone Gds. (R.A.T., S.P.): Rame-Eddystone Gds.; Stoke Pt. Gds. (S.P.): Eddystone Gds. (E.J.A., S.P.): a large quantity in two hauls, Rame Head bearing N.E. 2-2½ m., and N.E. by N. 2 m., Agassiz trawl; nearly every one had a small anemone on the shell (like *Sagartia viduata*) and Perigonimus on the operculum (A.J.S.): at two positions S.W. of Eddystone, 40-42 fms. (Crawshay, 1912, p. 370)

Breeding: ripe sperm and nearly ripe eggs Feb. 1929, Nov. 1930 (M.V.L.)

SALCOMBE. Shells common, especially in dredge material; nearly always occupied by a pagurid and covered with sponges (Allen & Todd, 1900, p. 211)

Family **Aporrhaidae**

APORRHAI PES-PELECANI (L.) [*Jeffreys*, 1867, IV, p. 250]

Not uncommon, particularly on muddy gravel, 5-35 fms.; Jennycliff B., rare; Cawsand B., occasionally; Rame-Eddystone Gds.; Stoke Pt. Gds.; etc. (S.P.): Eddystone Gds. (E.J.A., S.P.): one dead shell S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 370)

Young shells in Aug. (A.J.S.)

Order STENOGLOSSA

Family **Buccinidae****BUCCINUM UNDATUM** L. [*Jeffreys*, 1867, IV, p. 285]

Mewstone 'Echinoderm' Gd., moderately common; Rame-Eddystone Gds.; Yealm R., moderately common in dredgings, and not uncommon on the sand-bank (R.A.T.): Eddystone Gds., numerous on the gravel and coarser sands near the Eddystone (E.J.A.): Stoke Pt. Gds. (S.P.): shores at mouth of R. Yealm, about $\frac{1}{2}$ dozen from S. side and about 2 dozen from N. side, not very large, 6-7.3.16; about a dozen, Looe N.N.W. Downderry N.N.E., towing W. (A.J.S.): at seven positions S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 370)

Breeding: Jan.-Apr. (w.g.): hatching Feb.-Mar. (R.A.T.): a whelk laid eggs in a laboratory tank towards end of Mar., 1900; 10-12 batches of spawn each on a large piece of clinker, eggs quite young, 29.12.21 (A.J.S.)

SALCOMBE. One large specimen on the west shore of the Salstone; young specimens not uncommon in the dredgings (Allen & Todd, 1900, p. 211)

SYNTAGMA BRUNNEA (Donovan) [*Jeffreys*, 1867, IV, p. 313, as *Lachesis minima*]

Not uncommon in the Sound, under stones, L.W.-20 fms. (S.P.)

COLUS GRACILIS (da Costa) [*Forbes and Hanley*, 1853, III, p. 416, as *Fusus islandicus*]

Dead shells only (R.A.T.): at seventeen positions S.W. of Eddystone, 42-51 fms., chiefly empty shells with Eupagurus inside; living specimens at four positions (Crawshay, 1912, p. 370)

COLUS JEFFREYSIANUS (Fischer) [*Jeffreys*, 1867, IV, p. 340, as *Fusus buccinatus*]
Shells common (R.W.)**COLUS PROPINQUUS** (Alder) [*Jeffreys*, 1867, IV, p. 338, as *Fusus*]

One specimen S.W. of Eddystone 49 fms. (Crawshay, 1912, p. 370)

Family **Muricidae****OCENEBRA ERINACEA** (L.) [*Jeffreys*, 1867, IV, p. 306, as *Murex*]

Moderately common on rocks between tide-marks (R.A.T., S.P.): Asia Sh.; Millbay Ch.; Yealm R.; occasionally (R.A.T.): at one position S.W. of Eddystone, occupied by Eupagurus, 49 fms. (Crawshay, 1912, p. 370)

Breeding: spawn Apr. (R.A.T., S.P.): May (w.g.): S.W. of Eddystone, 49 fms. (L.R.C.)

SALCOMBE. Several large specimens dredged between Snape's Pt. and the mouth of the harbour, and one above Snape's Pt. (Allen & Todd, 1900, p. 211)

TROPHONOPSIS MURICATUS (Montagu) [*Forbes and Hanley*, 1853, III, p. 439, as *Trophon*]

Occasionally taken in 15-30 fms.; not uncommon on the Mewstone 'Echinoderm' Gd. (R.A.T.): one shell occupied by Eupagurus, S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 371)

Family **Thaididae**

NUCELLA LAPILLUS (L.) [*Jeffreys*, 1867, IV, p. 276, as *Purpura*]

Abundant on rocks between tide-marks everywhere (S.P.)

Spawn: Jan.-Apr. (W.G., R.A.T.): May (W.G.): July (S.P.): Nov. (W.G.): Nov., Dec., hatched Nov. 1930 (M.V.L.)

Family **Nassariidae**

NASSARIUS RETICULATUS (L.) [*Forbes and Hanley*, 1853, III, p. 388, as *Nassa*]

More or less common everywhere, L.W.-5 fms., especially on muddy sand; Cawsand B.; Jennycliff B.; Drake's I.; Yealm R.; etc. (S.P.)

Breeding: Feb. (W.G.): Mar. (W.G., R.A.T., S.P.): Apr. (W.G., R.A.T.): May (S.P.): June (R.A.T., S.P.): July (W.G.): Aug. (S.P.): Sept. (W.G.): egg-capsules on *Zostera*, spring and summer very common, hatched July, 1930 (M.V.L.)

SALCOMBE. Very commonly taken in a prawn pot, also fairly common on the various shores, especially Salstone (Allen and Todd, 1900, p. 211)

NASSARIUS INCRASSATUS (Ström) [*Forbes and Hanley*, 1853, III, p. 391, as *Nassa*]

More or less common on all rocky shores, gregarious under stones and in crevices, particularly where there is a certain amount of silt, L.W.-10 fms. (S.P.): one specimen S.W. of Eddystone, 46 fms. (Crawshay, 1912)

Breeding: Feb.-Mar. (S.P.): Apr. (W.G., R.A.T., S.P.): June (W.G.): Aug. (W.G., S.P.): Sept. (W.G.): a dozen or more fine clusters, Millbay Ch. (Pit), 25.1.09, on *Antennularia* stalks (A.J.S.): eggs laid in plunger-jar, Oct.-Dec., hatched Nov., Dec. 1930; late larvae in plankton, very common in summer (M.V.L.)

SALCOMBE. Several specimens taken by the dredge between Salstone and Snape's Pt., and a few between Snape's Pt. and the mouth (Allen & Todd, 1900, p. 211)

Family **Turridae**

HAEDROPLEURA SEPTANGULARIS (Montagu) [*Jeffreys*, 1867, IV, p. 390, as *Pleurotoma*]

Shell only in Suberites (R.W.): Rame-Eddystone, one dead shell (K.H.B.)

MANGELIA ATTENUATA (Montagu) [*Jeffreys*, 1867, IV, p. 377, as *Pleurotoma*]

Occasionally in muddy gravel, 20-30 fms. (S.P.)

MANGELIA NEBULA (Montagu) [*Forbes and Hanley*, 1853, III, p. 476]

Queen's Gd. (R.A.T.)

COMARMONDIA GRACILIS (Montagu) [*Jeffreys*, 1867, IV, p. 363, as *Defrancia* = *Mangilia gracilis* of 1904 Fauna List]

Not uncommon, 20-35 fms. particularly in muddy gravel (S.P.): one living, one dead, S.W. of Eddystone, 40-42 fms. (Crawshay, 1912, p. 371)

PHILBERTIA LINEARIS (Montagu) [*Jeffreys*, 1867, IV, p. 368, as *Defrancia*]

Queen's Gd., not uncommon; Asia Sh.; occasionally on the outside grounds, 15-30 fms. (R.A.T., S.P.): the breakwater, occasionally (R.A.T.): one living, one dead, S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 371)

PHILBERTIA PURPUREA (Montagu) [*Jeffreys*, 1867, IV, p. 373, as *Defrancia*]

Occasionally under stones and in rock crevices, L.W.-5 fms. ; Drake's I. ; Asia Sh. ; Hollow Rock B., Jennycliff B. ; Blackstone Rks., Wernbury B. ; etc. (S.P.)

Breeding : Nov. (S.P.)

SALCOMBE. Shell only, taken between Snape's Pt. and mouth of Harbour (Allen & Todd, 1900, p. 211)

PHILBERTIA ASPERRIMUS (Forbes and Hanley) [*Jeffreys*, 1867, IV, p. 370, as *Defrancia reticulata*]

Occasionally, 15-30 fms. (S.P.)

Order TECTIBRANCHIA

Family **Acteonidae****ACTEON TORNATILIS** (L.) [*Jeffreys*, 1867, IV, p. 433]

Dead shells occasionally taken (R.A.T.)

Family **Retusidae****RETUSA MAMMILLATA** (Philippi) [*Jeffreys*, 1867, IV, p. 420, as *Utriculus*]

Dead shells occasionally taken (R.A.T.)

RETUSA RETUSA (Maton and Rackett) [*Forbes and Hanley*, 1853, III, p. 510, as *Cylichna truncata*]

Only dead shells (R.A.T.)

RETUSA ALBA (Kanmacher) [*Jeffreys*, 1867, IV, p. 423, as *Utriculus obtusus*]

Shells only, off Eddystone (R.W.)

Family **Scaphandridae****SCAPHANDER LIGNARIUS** (L.) [*Jeffreys*, 1867, IV, p. 443]

Common on the trawling grounds outside Sound (W.I.B., S.P.)

Breeding : Looe-Eddystone, 28.1.25, half a dozen ribbons of spawn in early stage ; 1-6.3.28, 8-12 specimens spawned in tank (A.J.S.) : 6 m. S. of Breakwater, 7.3.29, spawn in early and advanced stages (M.V.L.)

CYLICHNA ACUMINATA (Bruguière) [*Jeffreys*, 1867, IV, p. 411]

Dead shell only (R.A.T.)

CYLICHNA CYLINDRACEA (Pennant) [*Jeffreys*, 1867, IV, p. 415]

Dead shells only (R.A.T.) : silty sand, Bigbury Bay (Ford, 1923)

Family **Bullidae****HAMINOEA HYDATIS** (L.) [*Jeffreys*, 1867, IV, p. 437, as *Bulla*]

Yealm Estuary (W.G.) : Jennycliff B., one (R.A.T.)

SALCOMBE. Fifteen living specimens on the muddy gravel on the western shore and on the clean gravel on the southern shore of the Salstone (Allen & Todd, 1900, p. 212) : Salstone, west shore, 15 ft. tide, 1 foot below low water (N.J.B.)

DAMONIELLA UTRICULUS (Brocchi) [*Forbes and Hanley*, 1853, III, p. 533, as *Bulla cranchii*]

A single specimen, 4½ m. S.W. by W. Penlee Pt. (R.A.T.)

Family **Philinidae**

PHILINE SCABRA (Müller) [*Jeffreys*, 1867, IV, p. 447]

Whitsand B., 4-12 fms. (W.H.)

PHILINE CATENA (Montagu) [*Jeffreys*, 1867, IV, p. 449]

Mewstone Ledge (W.I.B.) : Millbay Ch. (R.A.T.)

PHILINE PUNCTATA (Clark) [*Jeffreys*, 1867, IV, p. 453]

The Sound, single specimen among Bowerbankia ; plentiful 20 fms. among shells covered with Bugula, 1891 (W.G.) : Drake's I. (E.J.A.) : Asia Sh. ; Millbay Docks, occasionally on the piles (R.A.T.) : Asia Sh., dredge, 19.7.11 (A.J.S.)

PHILINE APERTA (L.) [*Jeffreys*, 1867, IV, p. 457]

Common on muddy sand bottom, at times very abundant ; Cawsand B. ; Jennycliff B. ; Cattewater, etc. (W.I.B., S.P.) : sandy bottom, Whitsand B. (W.G.)

SALCOMBE. Several specimens in dredgings between Salstone and the mouth of the Harbour, and some in dredgings from the ' Bag ' off Snape's Pt. ; on the shore it was taken, with spawn, on the Zostera bank between Millbay and the Ferry House (Allen & Todd, 1900, p. 212)

Breeding : Apr. (W.G.) : May-July (W.G., R.A.T.)

COLPODASPIS PUSILLA M. Sars [*Garstang*, 1894, p. 664]

On rough ground, about 2 m. S. of the Mewstone, Feb. 1893 (W.G.)

Family **Limacinidae**

LIMACINA RETROVERSA (Fleming) [*Forbes and Hanley*, 1853, II, p. 385, as *Spiralis flemingi*]

First observed in the Channel, Aug. 1905, especially in the South-West, but also in the North-West and Great West Bay areas ; still abundant Nov. (Gough, 1907, pp. 167, 222) : at Station E. 1 in small numbers, Feb. 1906 ; small numbers at all stations West of Start Point, May 1906 ; others probably mixed with *L. lesueuri* (Bygrave, 1911, p. 249) : often in large quantities in tow-nets from outside the Sound, occasionally inside, in spring and summer, especially June-Aug. (M.V.L.)

Breeding : June-Aug., many laying eggs : hatched from egg, July-Aug. (M.V.L.)

LIMACINA LESUEURI (d'Orbigny) [*Vayssière*, 1915, p. 146]

Large shoal of young present at every station in the North-West Area in Aug. 1906 ; another shoal in May 1906 ; in Nov. 1906, it spread so as to include all stations West of Portland, but the numbers were greatly decreased (Bygrave, 1911, p. 249) : 5 miles South of Rame Head, 23 Sept. 1905 ; off Breakwater, 1 Nov. 1920 (R.W.)

Family **Aplysiidae****APLYSIA PUNCTATA** Cuvier [*Garstang*, 1890, p. 401]

Queen's Gd., rare ; Cattewater ; Cawsand B. ; Reny Rks. ; Yealm R., moderately common in dredgings, very common at times on the shore, especially in May and June ; Yealm Estuary, small specimens not uncommon on the *Zostera* (R.A.T.) : E. end of Whitsand B., in quantity beneath seaweed on rocks (W.H.) : Queen's Gds., several young, 30.10.07, dredge (C.L.W.) : New Gds., 18.6.10, several specimens differently marked from usual kind, dull grey with light specks between the pigment spots, spawning ; 27.6.10, Queen's Gd. and Cawsand B., two or three grey specimens ; irregularly in Yealm Est. (A.J.S.)

SALCOMBE. This species, together with quantities of spawn was found in great abundance on the *Zostera* banks between the Marine Hotel and Gazebo in June 1900 ; later few were seen ; a few were also found on the other grounds, one on the north-east mud, Salstone, a few on the *Zostera* between Millbay and the Ferry House, and one on the rocks between Sandhill Pt. and South Sands Bay ; fairly frequently in dredged material (Allen & Todd, 1900, p. 212) : absent when searched for in Mar., Apr. 1922, abundant in Salcombe Est. Apr. 1923, spawning (J.H.O.) : Apr. 1926, none found, 1924, 1925 in quantity (S.M.N.)

Breeding : Mar. (J.H.O.) : Apr.-July (R.A.T., J.H.O.) : June-Oct. (W.G.) : maximum, May-June, Sept. (A.J.S.)

CLIONE LIMACINA Phipps [*Lenz*, 1906, p. 7]

Occasionally in tow-nettings (R.W., M.V.L.) : in tow-nettings from outside the Sound from Feb. to Aug., large specimens in Feb. ; very common in 1930, especially in summer, adults usually about 4 mm. long ; a few from inside the Sound (M.V.L.)

Breeding : June-Aug. ; many laying eggs ; eggs hatched and larvae reared until the stage at which the shell was lost ; larvae both with and without shell common in plankton June-Aug. 1930 ; larvae without shell occasionally, Sept.-Dec. 1930 (M.V.L.)

Family **Pleurobranchidae****PLEUROBRANCHUS (BERTHELLA) PLUMULA** (Montagu) [*Jeffreys*, 1869, V, p. 11]

Wembury B. on the shore ; S. of the Mewstone (W.G.) : Jennycliff B. (A.J.S.)

SALCOMBE. One specimen from the rocks between Gazebo and North Sands B. (Allen & Todd, 1900, p. 212)

PLEUROBRANCHUS (OSCANIUS) MEMBRANACEUS (Montagu) [*Jeffreys*, 1869, V, p. 10]

Not uncommon on the trawling grounds (W.I.B., S.P.) : the Sound, unusually plentiful, especially in Millbay Ch. and the Hamoaze 1893 ; young specimens common swimming at the surface in the Sound, Sept. 1892 (W.G.) : Cattewater and Yealm R., very occasional (R.A.T.) : Reny Rks., under stones low tide, 24.10.07 (C.L.W.) : shore, Wembury B., 3.9.06, one specimen spawning (R.E.)

Breeding : one specimen with spawn S.W. of Eddystone, 40 fms. (Crawshay, 1912, p. 371)

Family **Peltidae**

PELTA CORONATA Quatrefages [*Jeffreys*, 1869, V, p. 15, as *Runcina hancocki*]

Tide-pools below Hoe, very abundant Apr. 1889, small specimens in Sept. (w.g.) : Rum B. (R.A.T.) : among corallines from rock-pools in the Sound ; Yealm R. (w.i.b.) : over 50 specimens were seen in ' Drake's I. Tank ' in the Laboratory, some very large, on stones and shells all over the tank, 10.II.II (A.J.S.)

Order NUDIBRANCHIA

Family **Limapontiidae**

ACTEONIA COCKSI (Alder & Hancock) [*Eliot*, 1910, p. 143, as *Cenia*]

Tide-pools below the Hoe, one specimen (w.g.) : Jennycliff B. (s.p.) : Bovisand B., single specimen among corallines (w.i.b.) : dredged from Asia Sh., on a large specimen of *Ficulina ficus*, 25.II.09 (A.J.S., C.E.) : rock-pools below Laboratory amongst *Cladophora*, with *Limapontia capitata*, 4.3.II (K.H.B.)

LIMAPONTIA CAPITATA (O. F. Müller) [*Alder and Hancock*, 1848, p. 402, as *L. nigra*]

Reny Rks. (w.h., w.g.) : Cawsand B., abundant in tide-pools (w.g.) : tide-pools below the Hoe, abundant Apr. 1890, disappeared Aug. and Sept. (w.g.) : Drake's I., common on corallines (R.A.T., w.g.) : Rum B., occasionally (R.A.T., s.p.)

Family **Elysiidae**

ELYSIA VIRIDIS (Montagu) [*Forbes and Hanley*, 1853, III, p. 614]

Yealm Est., common (G.C.B., w.g.) : Duke Rk. ; middle of the Sound ; tide-pools below the Hoe (w.g.) : Queen's Gd. ; Yealm R. ; uncommon (w.i.b.) : New Grounds to Melampus Buoy, dredged 10.7.12 (A.J.S.)

Breeding : Oct. and probably earlier (w.g.)

SALCOMBE. A few dredged between Salstone and the mouth of the Harbour ; one trawled on *Zostera* between Rectory and Ditch End (Allen & Todd, 1900, p. 212)

Family **Stiligeridae**

STILIGER BELLULUS (d'Orbigny) [*Eliot*, 1910, p. 136]

Cawsand B. (w.g.)

HERMAEA BIFIDA (Montagu) [*Alder and Hancock*, 1845-55, p. 53]

St. Peter's Pt., Hamoaze, single specimen on *Delesseria* (w.g.) : West entrance of Sound, in tow-net, single specimen ; Cawsand B., single specimen (w.i.b.) : off Penlee Pt., small specimen in tow-net (s.p.) : Duke Rk., dredged, 9.9.13, on *Dasya* from which it is scarcely distinguishable (J.H.O.)

HERMAEA DENDRITICA (Alder & Hancock) [1845-55, p. 53]

Drake's I., two on *Bryopsis* (w.g.) : inside Bovisand Pier, single specimen (R.A.T.) : in Lab. tank on a stone from Bovisand B. (w.i.b.) : Wembury B. W., 29.5.22, mainly on *Codium* ; also abundant Mar.-Apr. 1922 (J.H.O.)

Breeding : June (w.g.)

Family **Calmidæ**

CALMA GLAUCOIDES (Alder & Hancock) [1845-55, p. 50, as Eolis]

Queen's Gd. (w.i.B. and R.A.T.): Blackstone Rks., Wembury B. (s.p.): West Entrance of Sound, amongst goby eggs, which is apparently its natural habitat (w.i.B.): Mewstone Gds., generally in Buccinum shells occupied by *Blennius ocellaris*, sometimes as many as 50 in one shell; resembles the eggs with which it is associated, the colour varying according to whether the eggs are those of the goby or Butterfly Blenny (A.J.S.)

Breeding: 26.4.09, three large specimens spawning on Buccinum shell in about seven batches; feeding on Hydractinia growing on shell, New and Queen's Gds.; 20.7.09, Rum B. shore, eggs taken off rock (collected by W. Searle, A.J.S.)

Family **Aeolidiidae**

AEOLIDIA PAPILLOSA (L.) [Alder & Hancock, 1845-55, p. 48, as Eolis]

Fairly common on all stony shores (w.i.B., s.p.): Yealm R., specimens common and particularly fine, among heaps of drift Fucus, etc. (A.J.S.)

Breeding: Feb. (R.A.T.): Mar.-May (w.G., R.A.T.): June (w.G.): July-Aug. (R.A.T.): 18.12.10, two spawned in tank (J.H.O.)

SALCOMBE. One dredged between Snape's Pt. and mouth of Harbour; spawn on *Zostera* between Millbay and Ferry House (Allen & Todd, 1900, p. 212)

EOLIDINA GLAUCA (Alder & Hancock) [1845-55, p. 48 as Eolis]

Millbay Ch., occasionally (R.A.T., w.i.B., A.J.S., s.p.): Drake's I., rarely (R.A.T., s.p.): Mallard Sh. (J.C.S.): Mt. Edgcumbe (w.G.): Queen's Gd. (w.i.B., R.A.T.): Asia Sh. (s.p.): Cattewater, large specimen probably from trawl refuse; 5-6 m. S.W. Breakwater Lt.; Mewstone Ledge (w.i.B.): several specimens under Laura Bridge; shore, Wembury Church Reef, one specimen, 20.3.16 (A.J.S.): Cattewater, 13.12.07 (C.L.W.)

EOLIDINA ALDERI (Cocks) [Alder & Hancock, 1845-55, p. 48, as Eolis]

Drake's I.; rocks below the Hoe (E.J.A.): Yealm R. (w.i.B., w.G., R.A.T.): Reny Rks. (R.A.T.): Wembury B., among corallines (w.i.B.)

Breeding: Aug. (w.G.)

CUTHONA NANA (Alder & Hancock) [1845-55, p. 50 as Eolis]

Asia Sh., July (J.H.O.)

CUTHONA PEACHI (Alder & Hancock) [1845-55, p. 50, as Eolis]

Two specimens with spawn on Hydractinia, 3-4 m. S. of Mewstone (w.i.B.): Millbay Channel on Tubularia, 1.6.10 (A.J.S.): Yealm R. Newton Ferrers, in shallow water at low tide, 9.7.10, with spawn (J.H.O.)

CUTHONA AMOENA (Alder & Hancock) [1845-55, p. 51, as Eolis]

Occasionally on stony ground; Millbay Ch.; Asia Sh.; New Gds. (w.i.B.)

SALCOMBE. One dredged between Snape's Pt. and the mouth of the Harbour (Allen & Todd, 1900, p. 212, as *Cratena*)

CRATENA CAERULEA (Montagu) [*Eliot*, 1910, p. 129, as *Amphorina*]

Asia Sh. ; Queen's Gd., not uncommon (S.P.) : Rame-Eddystone Gds. ; Mewstone-Eddystone Gds., on 'Cellaria' grounds (W.I.B.) : Mewstone Ledge ; off Tregantle (W.I.B. and R.A.T.)

CRATENA AURANTIA (Alder & Hancock) [1845-55, p. 51, as *Eolis aurantiaca*]

On piles, Millbay Dock ; buoy near the Breakwater (W.I.B. and R.A.T.) : Millbay Ch., very rare, one on *Garveia nutans* (R.A.T., W.I.B.) : Duke Rk. (W.I.B.)

Breeding : May (W.I.B., R.A.T.) : spawn on *Tubularia larynx* from buoy near Drake's I., 18.11.07 (C.L.W.)

CRATENA FOLIATA (Forbes and Goodsir) [*Alder & Hancock*, 1845-55, p. 50, as *Eolis olivacea*]

Occasionally on stony and rocky ground (W.I.B.) : Queen's Gd., occasionally (W.I.B., R.A.T., S.P.) : Asia Sh. ; Drake's I. ; Millbay Ch. and Pit (R.A.T.) : Mewstone Gds. (W.G.) : Yealm R. (W.I.B.) : Mewstone Ledge (W.I.B., S.P.) : one specimen, Asia Sh., 25.11.07 (C.L.W.)

CRATENA VIRIDIS (Forbes) [*Alder & Hancock*, 1845-55, p. 51, as *Eolis*]

Millbay Ch., single specimen (A.J.S.) : Duke Rk. (W.G.) : Mewstone Gds. (W.G.) : Rame-Eddystone 'Cellaria' Gds. (W.I.B.) : Eddystone Gds. (E.J.A.) : Cattewater (probably from Plymouth trawling gds.), 9.12.07 (C.L.W.)

FAVORINUS ALBIDUS Iredale and O'Donoghue [*Alder & Hancock*, 1845-55, p. 49, as *Eolis alba*=*Favorinus albus* in 1904 Fauna List]

Drake's I. (W.G., W.I.B.) : Asia Sh., on Antennularia ; Barn Pool, on Fucus ; Batten B. ; Duke Rk. (W.I.B.) : Cawsand B. (W.G.) : Yealm Est., on *Zostera*, fairly common in 1897 (W.I.B.)

Breeding : June (W.I.B.) : Nov. (W.G.)

FACELINA CURTA (Alder & Hancock) [1845-55, p. 49, as *Eolis drummondi*]

Queen's Gd. ; Cawsand B. ; Yealm Est. (W.I.B.) : one specimen S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 371)

FACELINA LONGICORNIS (Montagu) [*Alder & Hancock*, 1845-55, p. 49, as *Eolis coronata*=*F. coronata* in 1904 Fauna List]

Millbay Dock, on piles ; Millbay Ch. ; Cawsand B. (W.I.B.) : the Cattewater ; Cobbler Buoy ; Duke Rk. ; off the Mewstone (W.G.) : reef between Wembury Pt. and the Mewstone (E.J.A.) : Bridge Ground, 18.12.07 (C.L.W.)

Breeding : Apr.-May (W.G.)

FACELINA PUNCTATA (Alder & Hancock) [1845-55, p. 49, as *Eolis*]

Millbay Ch. ; Cawsand B. ; rocky ground off Penlee (W.I.B.) : Mewstone Gds. (W.G., W.I.B. and R.A.T.)

EMBLETONIA PULCHRA (Alder & Hancock) [1845-55, p. 52]

Asia Sh., single specimen, apparently on Antennularia (W.I.B.)

TERGIPES DESPECTUS (Johnston) [*Alder & Hancock*, 1845-55, p. 52, as *Eolis despecta*]

Millbay Dock, on piles, common, Mar. 1901 (R.A.T.) : Barn Pool (w.i.B.) : buoy near Breakwater ; Duke Rk. (R.A.T.) : Mewstone Gds. (w.G.) : five individuals reared in a bell jar on a colony of *Bougainvillia* from Millbay Pit, either brought in with colony or introduced in water, Nov. 1906 ; spawned in all directions over creeping stolon of colony ; very small when first observed ; growth extremely rapid involving destruction of nearly every polyp (L.R.C.) : abundant in *Obelia*, Cattewater, July 1920, with *Eubbranchus exiguus* (R.W.)

Breeding : Mar. (w.G., R.A.T.) : Apr.-May (R.A.T.)

Family Flabellinidae

EUBRANCHUS TRICOLOR Forbes [Alder & Hancock, 1845-55, p. 52, as *Eolis* = *Galvina tricolor* of 1904 Fauna List]

Fairly abundant on the trawling grounds, 20-35 fms. (w.i.B., s.p.) : at three positions S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 371) : Asia Sh. (R.P.) : Drake's I. (C.L.W.)

Breeding : May ; Nov. (w.G.)

EUBRANCHUS EXIGUUS (Alder & Hancock) [1845-55, p. 52, as *Eolis*]

Duke Rk. (w.G.) : Barn Pool, several specimens on *Obelia* (w.i.B.)

Breeding : Mar. (w.G.) : from Duke Rk., about 100 specimens, spawn crowded on *Obelia geniculata* growing on large fronds of *Laminaria*, 13.6.11 (A.J.S.) : on *Obelia* on *Laminaria* from buoy in Cattewater, about 70, eggs laid in bowl during night, 29.7.20 (H.G.C.) : eggs on *Antennularia*, hatched 6.3.30 (M.V.L.)

EUBRANCHUS PALLIDUS (Alder & Hancock) [1845-55, p. 51, as *Eolis picta*]

Cawsand B., common on *Zostera* ; Asia Sh. ; Millbay Ch. ; Queen's Gd. ; Yealm Est., on *Zostera* (w.i.B.) : buoy near West Hoe, among *Tubularia* (s.p.)

EUBRANCHUS CINGULATUS (Alder & Hancock) [1845-55, p. 51, as *Eolis*]

From among weed, etc., below the Laboratory (w.i.B.) : Asia Sh. (w.i.B. and R.A.T.) : Millbay Dock, on *Plumularia* from the piles ; Yealm Est., on *Zostera* ; Yealm R., on *Antennularia* (w.i.B.) : Mewstone Gds. (w.G.) : Queen's Gd., 26.8.10 (J.H.O.)

Breeding : July (w.G.)

CUMANOTUS BEAUMONTI (Eliot) [1910, p. 125]

Barn Pool (c.E. and w.i.B.) : one specimen 21.5.08 ; six, 23.5.08 ; five, 25.5.08 ; nine, 27.5.08 ; one, 29.5.08 ; all breeding ; west muds R. Tamar, one, 28.5.15 (A.J.S.)

CORYPHELLA RUFIBRANCHIALIS (Johnston) [Alder & Hancock, 1845-55, p. 49, as *Eolis*]

Fairly common on the ' Inner ' trawling grounds (w.i.B., s.p.) : Whitsand B. (w.G.)

CORYPHELLA GRACILIS (Alder & Hancock) [1845-55, p. 49, as *Eolis*]

Single specimen, between Duke Rk. and Jennycliff ; Cawsand B., single specimen (w.G.) : Asia Sh., two, 3.4.13 (A.J.S.) : Mewstone E.N.E. Rame N. $\frac{1}{4}$ E., 25 fms., 27.7.20 (H.G.C.)

CORYPHELLA PEDATA (Montagu) [*Alder & Hancock*, 1845-55, p. 49, as *Eolis landsburgi*]

Occasionally at most stations in the Sound and outside (w.i.b., s.p.) : twice amongst hydroids, Duke Rk. (w.g.) : near Asia Buoy, 22.10.07 ; Queen's Gd., 30.10.07 (c.l.w.)

CORYPHELLA LINEATA (Lovén) [*Alder & Hancock*, 1845-55, p. 49, as *Eolis*]

Mewstone Ledge, rare (r.a.t.) : on stone dredged in Firestone B. ; Rame-Eddystone Gds. (w.i.b.)

Family *Iduliidae*

IDULIA CORONATA (Gmelin) [*Alder & Hancock*, 1845-55, p. 48, as *Doto*]

Fairly plentiful on Antennularia at most stations (w.i.b., s.p.) : always on calyptoblastic hydroids (w.g.) : Millbay Docks on Plumularia ; buoy near Breakwater ; Drake's I., on the shore (w.i.b.) : Yealm R. (w.i.b., r.a.t.) : Queen's Gd., twice, Oct. 1907 (c.l.w.) : one S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 371)

Breeding : during the greater part of the year (w.i.b., s.p.) : Oct. (c.l.w.) : eggs hatched 14.11.30 (m.v.l.)

IDULIA FRAGILIS (Forbes) [*Alder & Hancock*, 1845-55, p. 48, as *Doto*]

Common on Antennularia, etc., from the outside grounds, less frequent in the Sound (w.g., w.i.b., s.p.) : young from Duke Rk., Dec. (c.l.w.) : New Gds., one specimen, 24.10.06, with spawn (l.r.c.) : at three positions S.W. of Eddystone, 44-45 fms. (Crawshay, 1912, p. 372)

Breeding : during the greater part of the year (w.i.b., s.p.)

IDULIA PINNATIFIDA (Montagu) [*Alder & Hancock*, 1845-55, p. 48, as *Doto*]

Generally distributed and common on Antennularia in the Sound and outside (w.i.b., s.p.) : Asia Sh. (c.l.w.)

Breeding : most of the year (w.i.b., s.p.)

Family *Zephyrinidae*

JANOLUS CRISTATUS (Delle Chiaje) [*Alder & Hancock*, 1845-55, p. 54, as *Antiopa cristata*]

Rock-pool under the Hoe ; Rum B. (w.g.) : Queen's Gd. (s.p., w.i.b.) : Millbay Docks, very large specimen ; Eddystone Gds. (w.i.b.) : Mewstone Gds. (w.g.) : Yealm R. (r.a.t.) : ten specimens and one batch of spawn, Millbay Docks, 17.12.12 (A.J.S.)

Breeding : Aug. (r.a.t.) : Dec. (A.J.S.)

JANOLUS HYALINUS (Alder & Hancock) [1845-55, p. 54, as *Antiopa*]

Queen's Gd., several small specimens (w.i.b.) : Duke Rk., once (t.v.h.) : Mewstone Ledge (w.i.b., and r.a.t.) : Mewstone 'Echinoderm' Gd. ; 2-4 m. N.E. of Eddystone (w.i.b.) : Asia Sh., 8.9.10, very like *Zephyrina mucroniferus* (J.H.O.)

Family **Heroidae**HERO FORMOSA (Lovén) [*Jeffreys*, 1869, V, p. 63]

Not uncommon outside the Breakwater (w.g.): Eddystone Gds.; Mewstone Gds.; Stoke Pt. Gds.; 6 m. S. of the Mewstone, in considerable numbers, Jan.-June 1895; has not been seen since 1898 (E.J.A. in 1904 Fauna List): Rame Eddystone Gds., 14.6.10 (A.J.S., "the first I have seen for several years"): about 2 m. N.W. of Eddystone, small specimens, 20.6.12 (A.J.S., "the first I have seen for many months")

Family **Scyllaeidae**SCYLLAEA PELAGICA L. (*Eliot*, 1910, p. 163]

Many from sailing vessel "Formica" in Plymouth Docks (R.W.)

Family **Lomanotidae**LOMANOTUS GENEI Vérany [*Eliot*, 1910, p. 115—*L. portlandicus* in 1904 Fauna List]

Very scarce; two specimens, New Gds.; 4 m. S. of Mewstone, large specimen; 3 m. S.S.W. of Rame Hd. (w.i.b.): Queen's Gd., young specimens on Antennularia (w.g.): New Gds., 13.7.20 (H.G.C.): Rame bearing N.E. $\frac{1}{2}$ E., 4 m. (A.J.S.): two specimens, New Gds., 4.7.21, about 1 $\frac{1}{2}$ inches long, one deep red, the other brown speckled with white (A.J.S.)

Breeding: Sept. (w.i.b.)

LOMANOTUS MARMORATUS (Alder & Haincock) [1845-55, p. 47]

Fairly common on Antennularia in shallow water; Asia Sh.; New Gds.; Millbay; etc. (w.i.b., s.p.): about 1 m. S. of Mewstone, large specimen (w.i.b.): 3 m. S. of Mewstone, as *L. varians* (w.g.)

HANCOCKIA EUDACTYLOTA Gosse [*Eliot*, 1910, p. 118]

Between Drake's I. and Breakwater Lt., once (F.W.G.); Cawsand B.; Yealm Est.; on Zostera and on Laminaria, rare (w.i.b.): New Gd., near Breakwater Lt., Oct. 3rd one specimen on Laminaria on which were colonies of Obelia, about a centimetre long; Cawsand B., 13.9.11, green variety (J.H.O.): Duke Rk., 30.3.14, among red weeds; New Gds., about an inch long, 4.7.21 (A.J.S.)

Family **Dendronotidae**DENDRONOTUS FRONDOSUS (Ascanius) [*Alder & Hancock*, 1845-55, p. 47, as *D. arborescens*]

Local specimens are usually small (s.p.): occasionally in the Sound (G.C.B.): Queen's Gd. (s.p., w.i.b.): R. Tamar, near Saltash, a large specimen (w.i.b.): Mewstone Ledge occasionally (R.A.T.): Mewstone-Eddystone Gds. (w.g.): Eddystone Gds. (E.J.A.): Rame-Eddystone Gds. (w.g., s.p.): Rame Hd. bearing N.E. by N., Eddystone S. $\frac{1}{4}$ W. about 3 $\frac{1}{2}$ m., otter trawl (A.J.S., C.E.): one S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 372)

Family **Arminidae**ARMINA LOVENI (Bergh) [*Forbes and Hanley*, 1853, IV, p. 290, as *Diphyllidia lineata*]

Single specimen 2 m. N. of Eddystone (J.T.C.)

Family **Okeniidae**

IDALIELLA ASPERSA (Alder & Hancock) [1845-55, p. 46, as *Idalia*]
Yealm Est. once ; off Penlee Pt. once (w.g.)

OKENIA QUADRICORNIS (Montagu) [*Alder & Hancock*, 1845-55, p. 46, as *Idalia elegans*]

SALCOMBE. Salstone, at low-water mark, filling interior of *Ascidiella* test, presumably having eaten the contents, 26.8.30 (N.J.B.)

ANCULA CRISTATA (Alder) [*Alder & Hancock*, 1845-55, p. 45]

Rocks below the Laboratory (E.J.A.) : near the Ladies' Bathing Pool (w.g., T.V.H.) : on the piles at Millbay Dock (R.A.T.) : Drake's I. (w.g., w.i.b., R.A.T.) : Cawsand B. (w.g.) : Batten B., amongst corallines, etc. (w.i.b.) : Jennycliff B. (R.A.T.) : Rum B., Nov. 1907 (C.L.W.)

GONIODORIS NODOSA (Montagu) [*Alder & Hancock*, 1845-55, p. 44]

Plentiful on most shore stations and in dredgings from Sound (w.i.b., s.p.) : at one position S.W. of Eddystone, 47 fms. (Crawshay, 1912, p. 372)

Breeding : Jan.-Apr. (w.g., R.A.T.) : May ; Sept. ; Dec. (w.g.) : adults, with spawn, in large numbers on the shores of the Sound from Feb. to May ; small specimens abundant in dredgings in June, July and Aug. ; probably an annual migrating to the shores to spawn (w.g.) : Queen's Gd., 30.8.07 (C.L.W.) : spawn laid in bowl, 16.12.30 (M.V.L.)

SALCOMBE. A few only in the dredge between Salstone and mouth of Harbour, excepting on the shell-gravel in the "Bag" (Allen & Todd, 1900, p. 212)

GONIODORIS CASTANEA Alder & Hancock [1845-55, p. 44]

Occasionally under stones on most rocky shores (s.p.) : below the Lab. (E.J.A., w.g., s.p.) : Millbay Ch. (w.i.b., R.A.T.) : Drake's I. (E.J.A.) : Cattewater ; Rum B. ; Bovisand Cove (w.g.) : Cawsand B. (T.V.H.) : Rame-Eddystone Gds. ; Yealm R. occasionally (R.A.T.)

Breeding : Feb. ; May ; July ; Sept. (w.g.) : spawn laid, 30.10.30, found by Mr. J. E. Smith, hatched 12.11.30 (M.V.L.)

Family **Onchidoridae**

ONCHIDORUS FUSCA (O. F. Müller) [*Alder & Hancock*, 1845-55, p. 43, as *Doris bilamellata*=*Lamellidoris bilamellata* in 1904 Fauna List]

Common ; Batten B. ; Jennycliff B. ; Duke Rk. (w.g.) : Millbay Ch. ; the Breakwater ; Yealm R. (w.i.b., R.A.T.) : 4 m. N.E. of the Eddystone, once (T.V.H.) : several, Asia Sh., 25.11.07 (C.L.W.)

SALCOMBE. One only, taken in dredge between Snape's Pt. and mouth of Harbour (Allen & Todd, 1900, p. 212)

ONCHIDORUS SPARSA (Alder & Hancock) [1845-55, p. 43, as *Doris*]
Off Stoke Pt. once (w.g.)

ONCHIDORUS ASPERA (Alder & Hancock) [1845-55, p. 42, as *Doris*]

Between the Mallard and Cobbler Buoys, single specimen (w.g.)
Yealm Est., very rare (R.A.T.)

ONCHIDORUS DEPRESSA (Alder & Hancock) [1845-55, p. 43, as *Doris*]

Inner side of Breakwater once ; Mewstone Ledge once (w.i.b.)

ONCHIDORUS OBLONGA (Alder & Hancock) [1845-55, p. 43, as *Doris*]

Extremely abundant at times on Cellaria ; Mewstone Ledge ; Rame-Eddystone Gds. ; Eddystone Gds. ; etc. (w.i.b.)

Breeding : Apr. (w.g.)

ATALODORIS PUSILLA (Alder & Hancock) [1845-55, p. 43, as *Doris*]

Plymouth (w.g.)

Breeding : Feb. (w.g.)

ACANTHODORIS PILOSA (Abildgaard) [*Alder & Hancock*, 1845-55, p. 43, as *Doris*]

Rocks under the Lab. (E.J.A.) : Drake's I., occasionally (E.J.A., R.A.T.) : Millbay Ch., occasionally ; Asia Sh., occasionally ; Queen's Gd., not uncommon ; Rum B. ; the Breakwater (R.A.T.) : Duke Rk. (T.V.H., R.A.T.) : Bovisand B. (T.V.H.) : Wembury B. (w.g.) : Yealm R., not uncommon (R.A.T.) : 2 m. N. of the Eddystone (J.T.C.)

Breeding : May ; 14.1.10, from Sand-bank, R. Yealm, just beginning to lay their spawn (A.J.S.)

Family **Euphuridae**

PALIO LESSONI (d'Orbigny) [*Alder & Hancock*, 1845-55, p. 45, as *Polycera ocellata* and *P. lessoni*]

Rum B. (w.i.b., R.A.T., S.P.) : Duke Rk., Mt. Edgcumbe ; Drake's I. (w.g.) : Queen's Gd. (T.V.H.) : Asia Sh. (R.A.T.)

POLYCERA QUADRILINEATA (O. F. Müller) [*Alder & Hancock*, 1845-55, p. 45]

In most years abundant on *Zostera* beds ; Cawsand B. ; Yealm Est. ; etc. (w.i.b., S.P.) : Drake's I., under stones (w.i.b.) : Yealm R., occasionally (R.A.T., w.i.b.) : Queen's Gd. (w.i.b.) : Wembury B. (w.g.) : Rame-Eddystone Gds. ; Eddystone Gds. (w.i.b., S.P.) : Bigbury B., large specimen, close in, off Thurstlestone (w.i.b.) : two specimens with no yellow marks on the body wall, the only yellow was on tentacles (there were four pairs), tips of branchiae and tips of the pair of dorsal papillae, Cawsand B., 5 to 7 fms., 11.7.07 ; black variety on *Laminaria* on buoy in Cawsand B., 22.8.10 (J.H.O.)

THECACERA PENNIGERA (Montagu) [*Alder & Hancock*, 1845-55, p. 44]

Off Rame Hd., 20 fms., single specimen (w.g.) : Queen's Gd. (S.P.)

EUPHURUS CLAVIGER (O. F. Müller) [*Alder & Hancock*, 1845-55, p. 44, as *Triopa*]

Millbay Pit., single specimen (w.i.b., R.A.T.) : Mewstone Ledge, occasionally (R.A.T.) : Mewstone Gds. (w.g., E.J.A.) : Stoke Pt. Gds. ; Eddystone Gds. (E.J.A.)

Family **Aegiretidae**

AEGIRES PUNCTILUCENS (d'Orbigny) [*Alder & Hancock*, 1845-55, p. 44, as *Aegirus*]

Millbay Pit and Ch., very occasionally ; Drake's I., single specimen among coralline (R.A.T.) : Queen's Gd. (T.V.H.) : Duke Rk. (w.g., T.V.H.) : Yealm R. (R.A.T.) : Wembury B., few small specimens among corallines

(T.V.H.): Eddystone Gds. (E.J.A.): one large specimen from rocks under Lab.; two large specimens from Rum B. shore, 20.7.09 (A.J.S.): rocks below Lab., 14.7.20 (H.G.C.): Duke Rk., dredge, 6.12.07; Asia Sh., dredge, 18.12.07; New Gds., dredge, 18.12.07 (C.L.W.): 5 fathoms, Sound, 11.6.20; rocks below Lab., July 1920 (R.W.)

Family Doridigitatidae

ROSTANGA RUFESCENS Iredale and O' Donoghue [*Alder & Hancock*, 1845-55, p. 42, as *Doris coccinea*=*R. coccinea* in 1904 Fauna List]

Occasionally on the shore and in dredgings from the Sound on stony ground (W.I.B., S.P.): Drake's I. (W.G., G.C.B.): Yealm R.; Downderry, on the shore (W.I.B.): Duke Rk., dredge, 6.12.07 (C.L.W.): often on the sponge *Microciona atrasanguinea* (J.H.O.)

JORUNNA TORMENTOSA (Cuvier) [*Alder & Hancock*, 1845-55, p. 42, as *Doris johnstoni*]

Occasionally on rocky and stony shores, and in dredgings from the Sound (W.G., W.I.B., S.P.): Reny Rks.; Yealm Est., south shore (W.I.B.): Mt. Edgcumbe shore, 5.11.07; Reny Rks., under stones, on sponges, 24.10.07 (C.L.W.): Rum Bay, 15.6.20 (R.W.)

GEITODORIS PLANATA (Alder & Hancock) [1845-55, p. 42, as *Doris*]
Duke Rk., dredge, 6.12.07 (C.L.W.)

ARCHIDORIS BRITANNICA (Johnston) [*Alder & Hancock*, 1845-55, p. 41, as *Doris tuberculata* Cuvier]

Not uncommon on most rocky shores and in dredgings from the Sound (W.G., W.I.B., S.P.): Yealm R.; Rame-Eddystone Gds.; Eddystone Gds. (W.I.B.): Eddystone bearing S.E. 3 m., otter trawl, 29.11.23, 16 large specimens (A.J.S.): at three positions S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 372)

Breeding: Jan.-June (W.G.): Dec. (M.V.L.)

SALCOMBE. Two specimens only were found on the south-east shore of Salstone (Allen & Todd, 1900, p. 212)

ARCHIDORIS FLAMMEA (Alder & Hancock) [1845-55, p. 41, as *Doris*]

Duke Rk., single specimen on red sponge (W.G.): Queen's Gd., or Duke Rk., single specimen (W.I.B.): Duke Rk., dredge, 4.11.07, on a red sponge (C.L.W.)

ARCHIDORIS STELLIFERA Vayssière [*Jeffreys*, 1867, V, p. 85, as *Doris testudinaria* Risso=*Platydoris testudinaria* of 1904 Fauna List]

Drake's I. (W.G., T.V.H.): Barn Pool (W.H., W.G.): Garden Battery (E.J.A.): Mt. Edgcumbe; Millbay Ch.; Queen's Gd., very occasionally (R.A.T.): Duke Rk. (W.G.): Yealm R. (R.A.T.): Rame-Eddystone Gds. (W.I.B.): shore collecting, E. end of Drake's I., 29.4.08; Mewstone Ledge-Stoke Pt. Gds., dredge, 19.7.09 (A.J.S.)

DORIDIGITATA STICTA O' Donoghue [*Eliot*, 1910, p. 147, as *Doris maculata* Garstang]

Queen's Gd. (W.G., S.P.): Mewstone Ledge (T.V.H.): Eddystone Gds. (E.J.A., W.I.B.): Asia Sh., dredge, about a centimetre long; Rame Hd.,

bearing N.E. by N., Eddystone S. $\frac{1}{2}$ W., about $3\frac{1}{2}$ m., 9.4.08, otter trawl; Rame-Eddystone Gds., otter trawl, 9.6.08; Rame Hd., bearing N.E. $\frac{1}{2}$ E., 2 m. otter trawl, 21.4.08 (A.J.S.): 30 fms., Eddystone S. 62 W., $2\frac{1}{2}$ m., otter trawl, July 1920 (R.W.)

Family **Duvauceliidae**

SPHAEROSTOMA HOMBERGI (Cuvier) [*Alder & Hancock*, 1845-55, p. 165, as *Tritonia*]

The habitat of this form appears to be below the 30 fm. line (w.i.b., s.p.): Mewstone Ledge (t.v.h.): common on the 'outer' trawling grounds (w.g.): Eddystone Gds. (e.j.a., w.g., s.p.): Mewstone Gds. (j.t.c.): at five positions S.W. of Eddystone, 40-49 fms. or over (Crawshay, 1912, p. 372)

DUVAUCELIA PLEBEIA (Johnston) [*Alder & Hancock*, 1845-55, p. 167, as *Tritonia*]

Millbay Pit (A.J.S.): Mewstone Gds. (w.g.): Rame-Eddystone Gds. (w.i.b.): Eddystone Gds. (e.j.a., w.i.b.)

A pink variety on Eunicella, especially from the Mewstone Ledge (w.i.b.): at five positions S.W. of Eddystone, 40-47 fms. (Crawshay, 1912, p. 372)

Breeding: Aug., Oct. (R.A.T.): Nov. (w.g.)

DUVAUCELIA LINEATA (Alder & Hancock) [1845-55, p. 169, as *Tritonia*]

Stoke Pt. Gds., single specimen (s.p.)

Order PULMONATA

Family **Otinidae**

OTINA OTIS (Turton) [*Jeffreys*, 1869, V, p. 110]

Common in empty barnacle shells near high-water mark on the rocks under West Hoe and below Laboratory (R.A.T.): very abundant near high-water mark in rock crevices, etc., gregarious within limited areas; Drake's I.; cave under Ram's Cliff Pt.; etc. (s.p.)

Family **Ellopiidae**

LEUCOPEPLA BIDENTATA (Montagu) [*Jeffreys*, 1869, V, p. 104, as *Melampus*]

Rocks under West Hoe, in empty barnacle shells (R.A.T.): common in crevices of rocks near high-water mark; Jennycliff B.; Drake's I.; etc. (s.p.): high-water mark in cave below Laboratory, 12.5.13, gregarious (J.H.O.)

Family **Oncidiidae**

ONCHIDELLA CELTICA (Cuvier) [*Jeffreys*, 1869, V, p. 95, as *Oncidium*]

$\frac{1}{2}$ m. right of Y.M.C.A. Hut, Polhawn Cove, Whitsand Bay, practically high-water mark, 19.6.26, by hand (also found in same spot, 22.5.27); found on one particular rock in batches on Sabellaria beds, a few small specimens found about high-water mark on same rock; 16.6.29 on same rock but higher up, two only, none on Sabellaria tubes as before; most of the Sabellaria gone (S.M.N.)

Class **CEPHALOPODA**

Order DECAPODA

Family **Ommastrephidae**

ILLEX COINDETI (Vérany) [*Jeffreys*, 1869, V, p. 129, as *Ommatostrephes sagittatus*]

From mackerel nets about 20 m. S.W. of Eddystone, June 29th, 1920, one (R.W.): a half-ripe female brought in on the morning of July 19th, 1929, and probably caught not far from the Sound (A.M.B.)

TODAROPSIS EBLANAE (Ball) [*Hoyle*, 1891, p. 189, as *Illex*]

Plymouth neighbourhood, single specimen (J.T.C. and W.E.H.): from market, not uncommon, June, Nov. 1920 (20 specimens) (R.W.)

STHENOTEUTHIS PTEROPUS (Verrill) [*Goodrich*, 1892, p. 314]

Captured off Salcombe, 6.1.92 (E.S.G.)

Family **Loliginidae**

LOLIGO FORBESI Steenstrup [*Hoyle*, 1885, p. 459]

The Sound, occasionally (w.g.): practically absent, Jan.-June, 1895 (E.J.A.): Tamar R., below Saltash Bridge; Lynher R.; small specimens, common, July, 1897 (E.W.L.H.): 'Inner' trawling grounds, large specimen, Aug., 1897 (W.I.B.): Sutton Harbour, latter end of Sept. and early October, 1914, hand-net, hook and line, and usually trammel, eight or ten dozen large specimens, mostly off the North Quay; of about three dozen examined, three out of every dozen were males (A.J.S.)

Breeding: Apr.-Sept. (w.g.): Mewstone Ledge, 25.10.28, large numbers of egg capsules, mostly with half-developed embryos (A.J.S.): ca. 2½ m. S. of Stoke Pt., many capsules, 30.1.29 (G.A.S., M.V.L.): spawn rarer than *Alloteuthis*; two clusters middle of May 1927, one lot Sept. 1928; two lots between June 27th and Aug. 20th, and Sept. 24th and Oct. 12th, 1929; three lots (one ripe, one half-ripe), Sept. 1930 (A.M.B.): occasionally, June-Oct. (M.V.L.)

LOLIGO VULGARIS Lamarck [*Jatta*, 1896, p. 167]

Occasional specimens of this southern form off Plymouth (A.J.S. and R.W.)

ALLOTEUTHIS SUBULATA (Lamarck) [*Norman*, 1890, p. 482, as *Loligo media*]

Cawsand B.; Whitsand B., etc. (w.g.): Jennycliff B. (R.A.T.): St. John's Lake, Hamoaze, Aug. 1898 (E.W.L.H.): one specimen S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 379)

Breeding: Apr.-June (w.g.): late embryos in Oct. (w.g.): spawn plentiful, May to Oct. (A.M.B.): Apr.-Dec. (M.V.L.)

ALLOTEUTHIS MEDIA (L.) [*Naef*, 1921-28, II, p. 215; *Norman*, 1890, p. 481, as *L. marmorae*]

Off the Draystone, single specimen (w.g.)

Family **Sepiidae**

PARASEPIA ELEGANS (d'Orbigny) [*Jatta*, 1896, p. 160, as *Sepia*]

Not uncommon on the trawling grounds (E.W.L.H., W.I.B., S.P.): at two positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 378)

Breeding: egg capsules, Mewstone 10°—3½ m., 27 fms., Agassiz trawl, 11.12.28 (G.A.S., M.V.L.): off Eddystone on Antennularia, 5.2.29 (M.V.L.): eggs on Antennularia, July 1927, July 1929; on Cellaria, Sept. 1930 (A.M.B.)

EUSEPIA OFFICINALIS (L.) [*Jatta*, 1896, p. 149, as *Sepia*]

Comes into the bays and estuaries to spawn during July and Aug. (W.I.B.): Mewstone Gds.; Rame-Eddystone Gds., etc., occasionally (R.A.T.): very scarce during 1904 (A.J.S.): at two positions S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 378)

Breeding: July-Sept. (R.A.T.). Hatching: Oct. (R.A.T.)

Family **Sepiolidae**

HETEROSEPIOLA ATLANTICA (d'Orbigny) [*Norman*, 1890, p. 473, as *Sepiola*]

Common in Cawsand B., Jennycliff B., and Whitsand B.; occasionally on the outside grounds in 15-30 fms. (R.A.T., S.P.): the Cattewater, common (R.A.T.): Tamar R., common just below Saltash Bridge: Downderry, common in sandy pools; Yealm R. (W.I.B.): one specimen S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 379)

Breeding: eggs on Cellaria (?), one or two sets of 5 or 6, July 1927, on Cellaria, July 1929, several lots (A.M.B.)

SEPIETTA OWENIANA (d'Orbigny) [*Grimpe*, 1925, p. 15; *Norman*, 1890, p. 472, as *Sepiola scandica*]

The Sound, single specimen, Nov. 1887 (W.H.): Mewstone Gds., single specimen Oct. 1899 (W.I.B.)

ROSSIA MACROSOMA (Delle Chiaje) [*Jatta*, 1896, p. 134]

Two specimens, autumn, 1892 (W.G.): occasionally on the trawling grounds (A.J.S.)

Order OCTOPODA

Family **Octopodidae**

OCTOPUS VULGARIS Lamarck [*Jeffreys*, 1869, V, p. 144]

On the shore and from lobster pots; generally only a few specimens are obtained during the summer months, but it varies greatly in abundance in different years (E.J.A.): exceptionally plentiful in 1900 (W.G.)

SALCOMBE. Three specimens were found nested on the southern end of the Salstone (Aug. 12th); also taken in the dredge, and with seine nets (tuck net) in Salcombe Harbour (Todd in Allen & Todd, 1900, p. 212)

OCTOPUS RUGOSUS (Bosc) [*Robson*, 1929, p. 63]

Plymouth district, sent to Mr. G. C. Robson of the British Museum as *vulgaris*, and he recognised it as a form of *rugosus*.

ELEDONE CIRROSA (Lamarck) [*Jeffreys*, 1869, V, p. 146]

Frequently met with on the trawling grounds (E.J.A.): commonly caught in lobster pots (A.J.S.): one specimen S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 379)

Breeding: a specimen laying eggs in an aquarium tank, several batches during twenty-four hours, 11.1.24 (A.J.S.)

Phylum **BRYOZOA**Class **ECTOPROCTA**

Order GYMNOLAEMATA

Family **Aeteidae****AETEA ANGUINA** (L.) [*Hincks*, 1880, p. 4]

Queen's Gd., occasionally on algae; common on rocky ground S. of Breakwater (R.A.T.): on red weed, Queen's Gd., 28.2.08 (A.H.): at 3 positions 29-48 m. S.W. of Eddystone, 42-51 fms. (Crawshay, 1912, p. 361)

AETEA RECTA Hincks [1880, p. 6]

Not uncommon on shells, etc., 20-35 fms.; Mewstone Gds.; Rame-Eddystone Gds. (R.A.T.): at 2 positions 16-30 m. S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 361)

AETEA TRUNCATA (Landsborough) [*Hincks*, 1880, p. 8]

SALCOMBE. Dredged in the channel between Salstone and Snape's Pt. (Allen & Todd, 1900, p. 204)

Family **Eucrateidae****EUCRATEA CHELATA** (L.) [*Hincks*, 1880, p. 14]

On a hulk near the Breakwater (R.A.T.): between Rame Hd. and the Eddystone, on Bowerbankia (E.J.A.): one small piece on red weed with *Aetea anguina*, Queen's Gds., 28.2.08 (A.H.): at 2 positions, 17-46 m. S.W. of Eddystone, 42-50 fms. (Crawshay, 1912, p. 361): New Gds., near Breakwater, dredged, 31.7.28 (A.B.H.)

SALCOMBE. Dredged in the Channel from the Salstone to the mouth of Salcombe Harbour (Allen & Todd, 1900, p. 204)

GEMELLARIA LORICATA (L.) [*Hincks*, 1880, p. 18]

Bolt Tail bearing N.E. 7-8 m., otter trawl, 29.6.14 (A.J.S.)

Family **Cellulariidae****SCRUPOCELLARIA REPTANS** (L.) [*Hincks*, 1880, p. 52]

Plymouth (S.F.H.)

SALCOMBE. Under Marine Hotel, lying on sand free from *Zostera*, and also among *Zostera*, 31.10.28 (G.A.S.)

SCRUPOCELLARIA SCRUPEA Busk [*Hincks*, 1880, p. 50]

Mewstone, 25 fms. (S.F.H.): probably this species with very small opercula, Queen's Gds., 28.2.08 (A.H.)

SCRUPOCELLARIA SCRUPOSA (L.) [*Hincks*, 1880, p. 45]

Common S. of Breakwater, 20-35 fms.; Mewstone Gds.; Rame-Eddystone Gds.; Stoke Pt. Gds. (R.A.T., S.P.): Eddystone Gds., plentiful on the fine sand and gravels, generally attached to Polychaete tubes or to *Cellaria*, rare on the shell gravel grounds (E.J.A.): on *Cellaria*, Mewstone Gds., 26.3.08 (A.H.): at 9 positions 18-39 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 361)

SALCOMBE. Small pieces dredged in Salcombe Harbour, attached to *Trochus (Gibbula) magus* (Allen & Todd, 1900, p. 204)

CABEREA BORYI (Audouin) [*Hincks*, 1880, p. 61]

Plymouth (S.F.H.)

Family **Bicellariidae**

BICELLARIA CILIATA (L.) [*Hincks*, 1880, p. 68]

Moderately common, 5-35 fms., on Cellaria and on hydroids (R.A.T.) : Millbay Pit ; Asia Sh. (R.A.T., S.P.) : Queen's Gd., not uncommon (S.P.) : Duke Rk. (E.J.A.) : Mewstone Ledge, occasionally (R.A.T.) : Rame-Eddystone Gds. (R.A.T., S.P.) : Eddystone Gds., not uncommon on various hydroids (E.J.A., S.P.) : from eleven positions, 8-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 362) : New Gds., 31.7.28 ; Mewstone Gds., 30.7.28, breeding (A.B.H.)

With ovicells : March (R.A.T.)

BUGULA AVICULARIA (L.) [*Hincks*, 1880, p. 75]

Eddystone Gds. (E.J.A., S.P.) : Rame-Eddystone Gds. (S.P.) : from 4 positions, 7-46 m. S.W. of Eddystone, 40-50 fms. (Crawshay, 1912, p. 362)

BUGULA FLABELLATA J. E. Gray [*Hincks*, 1880, p. 80]

Common in dredgings from Sound (R.A.T., S.P.) : Mewstone Ledge, moderately common (R.A.T.) : Eddystone Gds., occasionally (E.J.A.) : from 4 positions 7-30 m. S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 362)

Breeding : July, Sept. (R.A.T.)

SALCOMBE. Dredged in the "Bag," at the mouth of Kingsbridge Estuary, and in the channel in Salcombe Harbour (Allen & Todd, 1900, p. 204)

BUGULA NERITINA Gray [1848, p. 114]

New Gds., 31.7.28, dredged ; numerous larvae liberated in Laboratory ; probably a recent introduction brought to the docks on ships (A.B.H.) : Millbay Docks, Aug.-Sept. (A.H.)

BUGULA PLUMOSA (Pallas) [*Hincks*, 1880, p. 84]

Plymouth, common (S.F.H.)

BUGULA TURBINATA Alder [*Hincks*, 1880, p. 77]

Moderately common in dredgings from Sound (R.A.T., S.P.) : from 2 positions, 28-48 m. S.W. of Eddystone, 45-51 fms. (Crawshay, 1912, p. 362)

SALCOMBE. Dredged in quantity in the channel from the Salstone to the mouth of Salcombe Harbour (Allen & Todd, 1900, p. 204)

BUGULA CALATHUS Norman [*Hincks*, 1880, p. 82]

17 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 362) : New Gds. ; Mewstone Ledge, 13.7.20 (H.B.)

BUGULA MURRAYANA Johnston [*Hincks*, 1880, p. 92] var. *fruticosa* (Packard)

One tuft, Queen's Gds., 28.2.08 (A.H.)

BEANIA MIRABILIS Johnston [*Hincks*, 1880, p. 96]

From 12 positions, 17-48 m. S.W. of Eddystone, 42-51 fms., on other Bryozoa and on hydroids (Crawshay, 1912, p. 362)

Family **Flustridae****FLUSTRA FOLIACEA** (L.) [*Hincks*, 1880, p. 115]

Mewstone Ledge, when dredging for *Holothuria nigra*, 21.6.07, large colony ; between the Slimers and Yealm Pt., 16.7.09 (A.J.S.)

FLUSTRA PAPYRACEA Ellis & Solander [*Hincks*, 1880, p. 118]

Millbay Ch., occasionally (S.P.) : Queen's Gd. (R.M.P.) : New Gd., 31.7.28, dredged (A.B.H.)

FLUSTRA (? sp.) **SECURIFRONS** (Pallas) [*Hincks*, 1880, p. 120]

Millbay Ch., occasionally (R.A.T.) : one spray, Mewstone Gds., 26.3.08 (A.H.)

Family **Membraniporidae****MEMBRANIPORA AURITA** Hincks [1880, p. 159]

Mewstone, 20 fms., once (T.H.T.)

MEMBRANIPORA CATENULARIA (Jameson) [*Hincks*, 1880, p. 134]

Mewstone Gds. (R.A.T.) : Eddystone Gds. (E.J.A.) : from 4 positions, 28-40 m. S.W. of Eddystone, 45-49 fms. (Crawshay, 1912, p. 362)

MEMBRANIPORA CURVIROSTRIS Hincks [1880, p. 153]

Eddystone Gds. (R.M.P.)

MEMBRANIPORA DUMERILI (Audouin) [*Hincks*, 1880, p. 156]

Eddystone Gds. (E.J.A.) : Mewstone Gds., 26.3.08 (A.H.) : from 17 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 362) : Drake's I., shore, breeding, 2.8.28 (A.B.H.)

MEMBRANIPORA FLEMINGI Busk [*Hincks*, 1880, p. 162]

Eddystone Gds. (E.J.A.) : Mewstone Gds., 26.3.08 (A.H.) : from 5 positions, 17-46 m. S.W. of Eddystone, 42-50 fms. (Crawshay, 1912, p. 362)

MEMBRANIPORA FLUSTROIDES Hincks [1880, p. 151]

Mewstone, 25 fms. (S.F.H.) : from 2 positions, 29-30 m. S.W. of Eddystone, 47-49 fms. (Crawshay, 1912, p. 362)

MEMBRANIPORA IMBELLIS Hincks [1880, p. 160]

Plymouth, a doubtful fragment (S.F.H.) : Mewstone Gds., 30.7.28, breeding (A.B.H.)

MEMBRANIPORA LACROIXI Audouin [*Hincks*, 1880, p. 129]

Plymouth (R.M.P.) : common in Tamar up to half mile above Halton Quay, and in Lynher to St. German's viaduct, hand and dredge, June-Oct. 1928 (E.P.)

MEMBRANIPORA LINEATA (L.) [*Hincks*, 1880, p. 143]

Cawsand B. (T.H.T.) : 30 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 363)

MEMBRANIPORA MEMBRANACEA (L.) [*Hincks*, 1880, p. 140]

Generally distributed, on *Laminaria*, etc. (R.A.T., S.P.) : Drake's I., shore, 2.8.28 (A.B.H.)

MEMBRANIPORA PILOSA (L.) [*Hincks*, 1880, p. 137]

Common everywhere on Fucus, etc., between tide-marks (R.A.T., S.P.) : Queen's Gds., 28.2.08 (A.H.) : New Gds., 31.7.28 ; Drake's I., shore, 2.8.28 (A.B.H.)

MEMBRANIPORA ROSSELI (Audouin) [*Hincks*, 1880, p. 166]

Queen's Gd. ; Cawsand B. ; Mewstone, 20 fms. (S.F.H.)

Family **Microporidae****MICROPORA CORIACEA (Esper)** [*Hincks*, 1880, p. 174]

Mewstone, 25 fms. (S.F.H.) : from 5 positions 21-48 m. S.W. of Eddystone, 43-51 fms. (Crawshay, 1912, p. 363)

Family **Cellariidae****CELLARIA FISTULOSA (L.)** [*Hincks*, 1880, p. 106]

Common with *C. sinuosa*, especially on fine sand grounds, 15-30 fms. (E.J.A.) : Mewstone Gds., 26.3.08 (A.H.) : from 23 positions, 8-48 m. S.W. of Eddystone, 40-51 fms., not in any quantity except on fine sandy ground (Crawshay, 1912, p. 363) : one mile S.W. of Mewstone, 8.8.28 (A.B.H.)

CELLARIA SALICORNIOIDES Lamouroux [*Hincks*, 1880, p. 112, as *C. johnsoni*]

Eddystone Gds. (E.J.A.) : from 16 positions, 7-48 m. S.W. of Eddystone, 40-51 fms. or over, less frequently than the last but in the same situations (Crawshay, 1912, p. 363)

CELLARIA SINUOSA (Hassall) [*Hincks*, 1880, p. 109]

Common with *C. fistulosa*, especially on fine sand grounds, 15-30 fms. (E.J.A.) : from 10 positions, 21-48 m. S.W. of Eddystone, 42-51 fms. (Crawshay, 1912, p. 363) : one mile S.W. of Mewstone, 8.8.28 (A.B.H.)

Family **Tubicellariidae****LAGENIPORA SOCIALIS Hincks** [1880, p. 235]

Mewstone, 25 fms. (S.F.H.)

Family **Cribrilinidae****CRIBRILINA FIGULARIS (Johnston)** [*Hincks*, 1880, p. 196]

Mewstone 'Echinoderm' Gd. (R.A.T.) : Eddystone Gds. (E.J.A.) : 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 363)

With ovicells : Apr. (R.A.T.)

CRIBRILINA PUNCTATA (Hassall) [*Hincks*, 1880, p. 190]

Mewstone, 25 fms. (S.F.H.) : Queen's Gds., 28.2.08 (A.H.)

CRIBRILINA RADIATA (Moll) [*Hincks*, 1880, p. 185]

Mewstone Ledge, very common (S.F.H.) : Rame-Eddystone Gds., on *Pecten maximus* (R.A.T.) : Eddystone Gds. (E.J.A.) : from 11 positions, 21-48 m. S.W. of Eddystone, 42-51 fms. (Crawshay, 1912, p. 363)

MEMBRANIPORELLA NITIDA (Johnston) [*Hincks*, 1880, p. 200]

Common on *Lepralia foliacea* (S.F.H.) : abundant on *Lepralia foliacea*, Mewstone Gds., 26.3.08 (A.H.) : Mewstone, 20 fms. (T.H.T.) : 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 363)

Family **Microporellidae****MICROPORELLA CILIATA** (Pallas) [*Hincks*, 1880, p. 206]

Mewstone, 20 fms., var. *personata* (S.F.H.): Rame-Eddystone Gds., occasionally, on *Pecten maximus* (R.A.T.): Eddystone Gds. (E.J.A.): Queen's Gds., 28.2.08 (A.H.): one m. S.W. of Mewstone 8.8.28, breeding (A.B.H.)

MICROPORELLA IMPRESSA (Audouin) [*Hincks*, 1880, p. 214]

Common on red seaweeds (S.F.H.): Queen's Gds., 28.2.08, some zooecia with, others without marginal pores (A.H.)

MICROPORELLA MALUSI (Audouin) [*Hincks*, 1880, p. 211]

Mewstone Ledge, very common (S.F.H.): Eddystone Gds. (E.J.A.)

MICROPORELLA VIOLACEA (Johnston) [*Hincks*, 1880, p. 216]

Mewstone Ledge (S.F.H.): Eddystone Gds. (E.J.A.)

Family **Escharidae****LEPRALIA FOLIACEA** (Ellis & Solander) [*Hincks*, 1880, p. 300]

Millbay Pit, occasionally; Queen's Gd., not uncommon; Mewstone Ledge, abundant; more or less common on all the outside grounds, 10-30 fms. (S.P.): Mewstone Gds., 26.3.08 (A.H.): from 11 positions, 28-30 m. S.W. of Eddystone, 43-51 fms. or over; plentiful 39 m. S.W. of Eddystone (Crawshay, 1912, p. 364): Mewstone Gds., 30.7.28 (A.B.H.)

LEPRALIA PALLASIANA (Moll) [*Hincks*, 1880, p. 297]

Yealm R., 1½ fms. (T.H.T.): Yealm Sand-bank, between tide-marks (R.M.P.): Drake's I., shore, 2.8.28 (A.B.H.): common everywhere up to shore 100 yds. above Antony Creek, R. Lynher and to Cargreen, R. Tamar, June-Oct. 1928 (E.P.)

LEPRALIA PERTUSA (Esper) [*Hincks*, 1880, p. 305]

Yealm R.; Eddystone Gds. (E.J.A.): Mewstone Gds., 30.7.28, breeding (A.B.H.)

UMBONULA VERRUCOSA (Esper.) [*Hincks*, 1880, p. 317]

Drake's I., on rocks, between tide-marks (R.A.T., E.J.A.): Wembury B. (E.J.A.): Drake's I., shore, 2.8.28 (A.B.H.)

SALCOMBE. Common on the rocks at the mouth of Salcombe Harbour (Allen & Todd, 1900, p. 204)

CHORIZOPORA BRONGNIARTI (Audouin) [*Hincks*, 1880, p. 224]

Rame-Eddystone Gds., on *Pecten maximus* (R.A.T.): Eddystone Gds. (E.J.A.): Queen's Gds., several colonies, 28.2.08 (A.H.): from 5 positions, 17-40 m. S.W. of Eddystone, 43-49 fms. (Crawshay, 1912, p. 364): New Gds., 31.7.28, breeding (A.B.H.)

PORELLA CONCINNA (Busk) [*Hincks*, 1880, p. 323]

Mewstone, 20 fms., once (S.F.H.): Eddystone Gds. (E.J.A.): from 6 positions, 21-40 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 364): Mewstone Gds., 30.7.28, breeding (A.B.H.)

PORELLA COMPRESSA (Sowerby) [*Hincks*, 1880, p. 330]

From 10 positions, 21-46 m. S.W. of Eddystone, 42-50 fms. or over (Crawshay, 1912, p. 364)

ESCHAROIDES QUINCUNCIALIS (Norman) [*Hincks*, 1880, p. 339]

Plymouth, single specimen, Apr. 1889 (S.F.H.)

SMITTIA CHEILOSTOMA (Manzoni) [*Hincks*, 1880, p. 349]

Eddystone Gds. (E.J.A.)

SMITTIA LANDBOROVII (Johnston) [*Hincks*, 1880, p. 341]

Mewstone Ledge (S.F.H.)

SMITTIA TRISPINOSA (Johnston) [*Hincks*, 1880, p. 353]

Mewstone Ledge, excessively common (S.F.H.) : Eddystone Gds. (E.J.A.) : Mewstone Gds., abundant, 26.3.08 (A.H.) : from 6 positions, 21-39 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 364) : Mewstone Gds., 30.7.28, breeding (A.B.H.)

SMITTIA RETICULATA (Macgillivray) [*Hincks*, 1880, p. 346]

17 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 364)

PHYLACTELLA COLLARIS (Norman) [*Hincks*, 1880, p. 358]

Eddystone Gds. (E.J.A.)

MUCRONELLA COCCINEA (Abildgaard) [*Hincks*, 1880, p. 371]

Plymouth, very common (S.F.H.) : Eddystone Gds. (E.J.A.) : several colonies, Queen's Gds., 28.2.08 ; Mewstone, 26.3.08 (A.H.)

MUCRONELLA PEACHI (Johnston) [*Hincks*, 1880, p. 360]

Eddystone Gds. (E.J.A.) : from 2 positions, 28-30 m. S.W. of Eddystone, 45-47 fms. (Crawshay, 1912, p. 364) : Mewstone Gds., 30.7.28, breeding (A.B.H.)

MUCRONELLA VARIOLOSA (Johnston) [*Hincks*, 1880, p. 366]

Eddystone Gds. (E.J.A.) : from 4 positions, 19-21 m. S.W. of Eddystone, 43-49 fms. (Crawshay, 1912, p. 364)

MUCRONELLA VENTRICOSA (Hassall) [*Hincks*, 1880, p. 363]

Mewstone 'Echinoderm' Gd. ; Rame-Eddystone Gds. (R.A.T.) : Eddystone Gds. (E.J.A.) : from 6 positions, 21-39 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 364)

PALMICELLARIA SKENEI (Ellis & Solander) [*Hincks*, 1880, p. 379]

Eddystone Gds. (E.J.A.) : from 2 positions, 28-46 m. S.W. of Eddystone, 45-50 fms. (Crawshay, 1912, p. 364)

RHYNCHOZOOM BISPINOSUM (Johnston) [*Hincks*, 1880, p. 385, as *Rhynchopora*]

Eddystone Gds. (E.J.A.) : one m. S.W. of Mewstone, 8.8.28, breeding (A.B.H.)

HIPPOTHOA DISTANS Macgillivray [*Hincks*, 1880, p. 293, as *H. flagellum*]

Mewstone, 25 fms. (S.F.H.) : from 4 positions, 17-34 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 364)

HIPPOTHOA DIVARICATA Lamouroux [*Hincks*, 1880, p. 288]

Queen's Gds., 4 fms. (T.H.T.) : Mewstone 'Echinoderm' Gd. ; Rame-Eddystone Gds., on *Pecten maximus* (R.A.T.) : Eddystone Gds. (E.J.A.) : from 4 positions, 17-32 m. S.W. of Eddystone, 42-46 fms. (Crawshay, 1912, p. 365)

SCHIZOPORELLA ARMATA (Hincks) [1880, p. 258]

Mewstone, 25 fms., once (S.F.H.)

SCHIZOPORELLA AURICULATA (Hassall) [*Hincks*, 1880, p. 260]

Eddystone Gds. (E.J.A.)

SCHIZOPORELLA CECILII (Audouin) [*Hincks*, 1880, p. 269]

Eddystone, 20 fms. (S.F.H.)

SCHIZOPORELLA CRISTATA Hincks [1880, p. 254]

Mewstone Ledge, two small colonies in dead *Pecten* shell (S.F.H.)

SCHIZOPORELLA HYALINA (L.) [*Hincks*, 1880, p. 271]

Millbay Ch. (T.H.T.) : Plymouth, common ; Yealm Sand-bank, abundant on algae (R.M.P.)

SCHIZOPORELLA JOHNSTONI Quelch [*Hincks*, 1880, p. 246, as *S. simplex*]

Mewstone, 25 fms. (S.F.H.) : from 30 m. S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 365)

SCHIZOPORELLA LINEARIS (Hassall) [*Hincks*, 1880, p. 247]

Plymouth, very common (S.F.H.) : Millbay Ch. (R.A.T.) : Eddystone Gds. (E.J.A.) : from 9 positions, 19-21 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 365) : Mewstone Gds., 30.7.28, breeding (A.B.H.)

SCHIZOPORELLA SPINIFERA (Johnston) [*Hincks*, 1880, p. 241]

Plymouth (S.F.H.)

SCHIZOPORELLA UNICORNIS (Johnston) [*Hincks*, 1880, p. 238]

Mewstone, 25 fms. (S.F.H.) : from 3 positions, 21-30 m. S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 365)

SCHIZOPORELLA DISCOIDEA (Busk) [*Hincks*, 1880, p. 265]

From 39 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 365)

SCHIZOTHECA FISSA Busk [*Hincks*, 1880, p. 284]

Eddystone Gds. (E.J.A.) : New Gds., dredged, 31.7.28, breeding (A.B.H.)

Family Celleporidae

CELLEPORA AVICULARIS Hincks [1880, p. 406]

Mewstone, 20 fms. (T.H.T.) : Eddystone Gds. (E.J.A.) : Mewstone Gds., 26.3.08 (A.H.) : from 23 positions, 8-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 365) : one mile S.W. of Mewstone, 8.8.28 (A.B.H.)

CELLEPORA COSTAZII Audouin [*Hincks*, 1880, p. 411]

Cawsand B. (R.M.P.)

CELLEPORA DICHOTOMA Hincks [1880, p. 403]

Eddystone, 20-30 fms. (S.F.H.): from 3 positions, 17-30 m. S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 365)

CELLEPORA PUMICOSA L. [Hincks, 1880, p. 398]

Common at most outside stations (R.M.P.): from 5 stations, 17-30 m. S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 365): Mewstone Gds., 30.7.28, breeding (A.B.H.)

CELLEPORA RAMULOSA L. [Hincks, 1880, p. 401]

Eddystone Gds. (E.J.A., S.P.): Rame-Eddystone Gds. (R.A.T., S.P.): Stoke Pt. Gds. (S.P.): from 20 positions, 8-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 365)

Family **Crisiidae****CRISIA ACULEATA** Hassall [Harmer, 1891, p. 132]

Not uncommon, 4-5 fms., on red seaweeds, stones and sponges (S.F.H., R.A.T.)

Ovicells: Apr., May (S.F.H., R.A.T.)

CRISIA CORNUTA (L.) [Hincks, 1880, p. 419] (excl. var. *geniculata* = *C. geniculata*)

Fairly common, mostly on red seaweeds (S.F.H.): Queen's Gd.; Mewstone Ledge; Rame-Eddystone Gds. (R.A.T.): New Gds., 31.7.28 (A.B.H.)

Ovicells: commonest Apr.-May (S.F.H.)

CRISIA DENTICULATA (Lamarck) [Harmer, 1891, p. 129]

Plymouth, seldom found (S.F.H.): Queen's Gd., not uncommon; Duke Rk., occasionally common (R.A.T.): Queen's Gds., 28.2.08; Mewstone Gds., 26.3.08 (A.H.)

CRISIA EBURNEA (L.) [Harmer, 1891, p. 131]

Eddystone Gds. (E.J.A., R.A.T.): common, almost always on red weeds or Sertularia (S.F.H.): Queen's Gds., several young colonies, 28.2.08 (A.H.)

Ovicells: Feb.-May (S.F.H., R.A.T.): commonest, Mar.-Apr. (S.F.H.)

CRISIA GENICULATA H. Milne-Edwards [1838, p. 197]

Rare (R.A.T.)

CRISIA RAMOSA Harmer [1891, p. 134]

Plymouth, 4-30 fms., the commonest species; generally on stones, but also on shells, red seaweeds, Cellaria, sponges, etc; grows most luxuriantly in 4-6 fms. (S.F.H.): Queen's Gd., occasionally (R.A.T.): Eddystone Gds. (E.J.A.)

SALCOMBE. Dredged in all parts of the Channel from Salstone to mouth of Salcombe Harbour (Allen & Todd, 1900, p. 204)

Breeding: Feb. (R.A.T.): Apr.-Aug., maximum in May-June (S.F.H.)

Family **Diastoporidae****DIASTOPORA OBELIA** (Johnston) [Hincks, 1880, p. 462]

Eddystone Gds. (E.J.A.)

DIASTOPORA PATINA (Lamarck) [*Hincks*, 1880, p. 458]

Common on shells, etc., 15-35 fms. (R.A.T.): Mewstone Ledge, fairly common (S.F.H.): Rame-Eddystone Gds. (R.A.T.): Eddystone Gds. (E.J.A.): Mewstone Gds., 26.3.08 (A.H.): from 6 positions, 21-48 m. S.W. of Eddystone, 44-51 fms. (Crawshay, 1912, p. 366)

DIASTOPORA SARNIENSIS Norman [*Hincks*, 1880, p. 463]

Common on shells, stones, etc., 15-35 fms. (R.A.T.): Rame-Eddystone Gds. (R.A.T.): Eddystone Gds. (E.J.A.)

DIASTOPORA SUBORBICULARIS Hincks [1880, p. 464]

Mewstone Ledge (S.F.H.): Eddystone Gds. (E.J.A.): one colony, Queen's Gds., 28.2.08 (A.H.)

Family **Tubuliporidae**TUBULIPORA LOBULATA Hassall [*Hincks*, 1880, p. 444]

Queen's Gds., 28.2.08 (A.H.)

TUBULIPORA LILIACEA (Pallas) [*Harmer*, 1898, p. 90]

Duke Rk., very occasionally; not uncommon on shells, stones, hydroids, etc., S. of Breakwater, 15-30 fms.; Rame-Eddystone Gds. (R.A.T.): Eddystone Gds. (E.J.A.): from 18 positions, 8-46 m. S.W. of Eddystone, 40-51 fms. or over (Crawshay, 1912, p. 366)

TUBULIPORA PHALANGEA Couch [*Harmer*, 1898, p. 94]

Plymouth, common, 3-15 fms. (S.F.H.)

TUBULIPORA PLUMOSA W. Thompson [*Harmer*, 1898, p. 105]

Plymouth district, abundant on *Cystoceira granulata* and on *Saccorhiza bulbosa* (S.F.H.)

ENTALOPHORA CLAVATA (Busk) [*Hincks*, 1880, p. 456]

46 m. S.W. of Eddystone, 50 fms. (Crawshay, 1912, p. 366)

STOMATOPORA GRANULATA (Milne Edwards) [*Hincks*, 1880, p. 425]

Eddystone Gds. (E.J.A.): 30 m. S.W. of Eddystone, 49 fms. (Crawshay, 1912, p. 366)

STOMATOPORA JOHNSTONI (Heller) [*Hincks*, 1880, p. 430]

Eddystone Gds. (E.J.A.): 17 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 366)

STOMATOPORA MAJOR (Johnston) [*Hincks*, 1880, p. 427]

Eddystone Gds. (E.J.A.): 17 m. S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 366)

STOMATOPORA DILATANS (Johnston) [*Hincks*, 1880, p. 429]

48 m. S.W. of Eddystone, 51 fms. (Crawshay, 1912, p. 366)

STOMATOPORA DEFLEXA (Couch) [*Hincks*, 1880, p. 437]

From 4 positions, 17-40 m. S.W. of Eddystone, 42-49 fms. or over (Crawshay, 1912, p. 366): Rame-Eddystone Gds., 30 fms., 15.7.20, on shell (H.B.)

Family **Lichenoporidae****LICHENOPORA HISPIDA** (Fleming) [*Hincks*, 1880, p. 473]

Common on all grounds, 15-30 fms. (E.J.A.): Queen's Gds., 28.2.08, several colonies (A.H.): from 5 positions 19-40 m. S.W. of Eddystone, 42-49 fms. (Crawshay, 1912, p. 366)

SALCOMBE. On shells dredged in Salcombe Harbour (Allen & Todd, 1900, p. 205)

LICHENOPORA VERRUCARIA (Fabricius) [*Hincks*, 1880, p. 478]

Rame-Eddystone, 30 fms.; Looe N. 10° W. 5½ m., 28 fms.; 16 m. S.W. Eddystone, 40 fms., July 1920, on shell (H.B.)

Family **Alcyonidiidae****ALCYONIDIUM GELATINOSUM** (L.) [*Hincks*, 1880, p. 491]

In dredgings from the Sound, Mewstone Ledge, and S. of Breakwater to 35 fms. (R.A.T., S.P.): Millbay Ch.; Asia Sh.; abundant (A.J.S., S.P.): Eddystone Gds. (E.J.A.): from 13 positions, 21-39 m. S.W. of Eddystone, 40-49 fms., single or few colonies (Crawshay, 1912, p. 367): Mewstone Gds., 30.7.28 (A.B.H.)

ALCYONIDIUM HIRSUTUM (Fleming) [*Hincks*, 1880, p. 493]

Cawsand B. (T.H.T.)

ALCYONIDIUM MYTILI Dalyell [*Hincks*, 1880, p. 498]

Plymouth (S.F.H.): 40 m. S.W. of Eddystone, 52 fms. (Crawshay, 1912, p. 367): common in Lynher and Tamar—up to hard shore above Ince Castle, and to half mile above Cargreen, June-Oct., 1928 (E.P.): Drake's I., shore, 2.8.28, breeding, numerous larvae liberated in the laboratory (A.B.H.)

ALCYONIDIUM PARASITICUM (Fleming) [*Hincks*, 1880, p. 502]

Plymouth, on *Sertularia cupressina* (S.F.H.)

Family **Flustrellidae****FLUSTRELLA HISPIDA** (Fabricius) [*Hincks*, 1880, p. 506]

Very abundant everywhere between tide-marks, on *Fucus*, etc. (R.M.P.): Drake's I. shore, 2.8.28 (A.B.H.)

Breeding: early Feb. to mid-July; spermatozoa more abundant Feb.-Mar.; ova, Mar.-May; larvae, Apr.-July (R.M.P.)

Family **Vesiculariidae****VESICULARIA SPINOSA** (L.) [*Hincks*, 1880, p. 513]

From a Plymouth trawler working outside Eddystone Lighthouse, 28.2.12 (A.J.S.)

AMATHIA LENDIGERA (L.) [*Hincks*, 1880, p. 516]

Penlee, Rame Gds., common on *Halidrys* (R.M.P.): Duke Rk., 29.8.06, in the muddy cover of a dead *Maia squinado* (A.B., L.R.C.): Mewstone Gds., 26.3.08 (A.H.)

SALCOMBE. On dredge material from Channel W. of Salstone (Allen & Todd, 1900, p. 205)

BOWERBANKIA CAUDATA (Hincks) [1880, p. 521]

The Cattewater (T.H.T.)

BOWERBANKIA IMBRICATA (Adams) [*Hincks*, 1880, p. 519]

Millbay Dock (T.H.T.) : Duke Rk., 29.8.06, in muddy cover of a piece of shell (A.B., L.R.C.) : common everywhere, up to half mile above Halton Quay and to confluence of R. Tiddy and R. Lynher, hand and dredge, June-Oct. 1928 (E.P.)

Breeding : Aug. (A.J.S.)

BOWERBANKIA PUSTULOSA (Ellis & Solander) [*Hincks*, 1880, p. 522]

Plymouth, very common (S.F.H.) : Duke Rk. (T.H.T.) : Cattewater, July, Aug. 1911 (M.H.) : Sound, 2.8.28 (A.B.H.)

SALCOMBE. Probably this species common on dredge material from all parts of the Channel from the Salstone to the mouth of Salcombe Harbour (Allen & Todd, 1900, p. 205)

Family **Cylindroeciidae****CYLINDROECIUM DILATATUM** (Hincks) [1880, p. 536]

Eddystone Gds. (E.J.A.)

Family **Hypophorellidae****HYPOPHORELLA EXPANSA** Ehlers [*Joyeaux-Laffuie*, 1888, p. 152, as *Delagia chaetopteri*]Not uncommon on the tubes of *Chaetopterus variopedatus* (S.F.H.)Family **Triticellidae****TRITICELLA BOECKI** G. O. Sars [1873 b, p. 397]

Rame-Eddystone Gds., on a specimen of *Gonoplax rhomboides* (R.A.T.) : on female *Gonoplax rhomboides* E. of outside grounds, Looe-Eddystone, 30.4.14, with small eggs (J.H.O.) : probably this species on ventral surface of *Aphrodite aculeata* Mewstone Ledge, 25.10.27 ; Looe-Eddystone, 2.2.28 ; outer Mewstone Gds., 17.4.28 ; 5 m. S. of Harbour, 18.4.28 ; Mewstone Gds., 31.5.29 ; 1½ m. off Eddystone, 6.6.29 ; Eddystone, 11.7.29 ; S.W. of Eddystone, 16.7.29 (D.A.)

Family **Valkertiidae****VALKERIA UVA** (L.) [*Hincks*, 1880, p. 551]

30 m. S.W. of Eddystone, 47 fms., also probably this species from several other stations S.W. of Eddystone (Crawshay, 1912, p. 367)

Family **Mimosellidae****MIMOSELLA GRACILIS** Hincks [1880, p. 556]

SALCOMBE. One piece dredged in channel W. of Salstone (Allen & Todd, 1900, p. 205)

Class **ENTOPROCTA**Family **Pedicellinidae****PEDICELLINA CERNUA** (Pallas) [*Hincks*, 1880, p. 565]

Not uncommon, L.W.-35 fms. ; Tinside ; Asia Sh. ; Drake's I. ; Queen's Gd. ; Duke Rk. ; Wembury B. ; Rame-Eddystone Gds., on hydroids,

Cellaria, Algae, etc. (R.A.T.): Millbay Dock (T.H.T.): Penlee-Rame Gds., on *Bowerbankia imbricata* (R.M.P.): Eddystone Gds. (E.J.A.): from 15 positions 8-48 m. S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 367): New Gds., 31.7.28; Drake's I. shore, 2.8.28; Mewstone Gds., 30.7.28 (A.B.H.): mussel bed off Neille Pt., opposite mouth of Tavy, dredge, 3.10.28 (E.P.)

SALCOMBE. On *Turritella* shell from the Channel between Salstone and Snape's Pt.; on *Sertularella* from Channel in Salcombe Harbour (Allen & Todd, 1900, p. 205)

BARENTSIA GRACILIS (Sars) [*Hincks*, 1880, p. 570, as *Pedicellina*]

From 5 m. S. of Mewstone, 27 fms. (T.H.T.): from 14 positions 17-48 m. S.W. of Eddystone, 42-51 fms. (Crawshay, 1912, p. 367): New Gds., dredged, 31.7.28; Mewstone Gds., 30.7.28 (A.B.H.): a very small quantity on ventral surface of *Aphrodite aculeata* dredged from Rame mud, 12.3.30 (D.A.)

LOXOSOMA PHASCOLOSOMATUM Vogt [*Hincks*, 1880, p. 574]

SALCOMBE. On the posterior end of *Phascolosoma vulgare* from the shore north of Pilworthy Pt. (Allen & Todd, 1900, p. 205): attached to outer surface of shell of *Lepton clarkiae*, and *Mysella bidentata*, taken from the burrows of *Phascolosoma vulgare* and *P. elongatum* by Dr. J. H. Orton; a number of mature females and males, females with embryos in vestibule, larvae liberated, budding, 12.9.23; on caudal extremity of *Phascolosoma vulgare*, 1928 (D.A.)

LOXOSOMA SINGULARE ? Keferstein [*Claparède*, 1863, p. 105]

Outer Rame-Eddystone Gds., attached to under surface of elytra and also to dorsal and ventral surfaces of *Aphrodite aculeata*, 21.9.23; females and males with mature gonads, embryos in vestibule, larvae liberated, budding, attached to under surface of elytra and also to dorsal and ventral surfaces of *Aphrodite aculeata*, Looe-Eddystone, 11.8.27, 1.2.28; Mewstone Ledge, 25.10.27, 13.4.28 (embryos in vestibule); Bigbury B., 30.5.29 (embryos in vestibule); Eddystone, 29.6.29 (budding); 11.9.29, well developed buds; S.W. Eddystone, 16.7.29 (embryos in vestibule); occurs, at least in small numbers, on a good percentage of *Aphrodite* examined (D.A.)

LOXOSOMA CRASSICAUDA Salensky [1877, p. 1-60]

Growing on south side of Drake's I.-Tank and in a small worm tank in aquarium, Feb.-Nov. 1929, all in which sex was recognisable were males, a few with sperm; budding freely (D.A.)

LARVAL BRYOZOA

Cyphonautes larvae in plankton spring and summer (M.V.L.): *Cyphonautes compressa*, July, 1928, in plankton; *Cyphonautes borealis* in tow-netting from near Knap Buoy, 26.5.30 (A.B.H.)

Phylum **ECHINODERMATA**Class **CRINOIDEA**Family **Antedonidae****ANTEDON BIFIDA** (Pennant) [*Mortensen*, 1927, p. 28]

Extremely abundant at certain small areas, but practically restricted to these (S.P.): Millbay Pit (R.A.T., S.P.): Asia Sh., occasionally (R.A.T., S.P.): Mallard Sh. (G.C.B., J.T.C., S.P.): inside the Bridge (S.P.): the Cattewater, several specimens on bottom of coal hulk off Turnchapel (A.J.S., S.P.): Mewstone Ledge (S.P., R.A.T.): mid-way between Mallard Buoy and Batten Breakwater, black mud with clinker, 8 juv: 26.10.22 (E.F.)

Breeding: the marsupia containing ova, Oct. (T.V.H.): dredged specimens from Millbay Pit giving off larvae and with clusters of segmenting eggs on the pinnacles; a fair proportion of the Antedon taken were in this condition and many of the others had swollen gonads, 25.9.13 (J.H.O.): Aug. (R.W.). Pentacrinoïd larvae in Feb.; also from Mallard Pit, dredged, about half a dozen in various stages of development and quite a number of very young Antedon, 24.11.19 (A.J.S.): July (R.A.T., S.P.): Aug., abundant at all stages chiefly on Cellaria (E.W.L.H.): Sept.-Oct. (W.G.): free-swimming larvae, July 14th (H.G.N.)

The parasitic polychaete *Myzostomum cirriferum* is common on the arms of this species (E.J.A.)

SALCOMBE. One from Castle Rocks, low water, spring tide, 12.4.29 (G.M.S.)

Class **ASTEROIDEA**

Order PHANEROZONIA

Family **Astropectinidae****ASTROPECTEN IRREGULARIS** (Pennant) [*Mortensen*, 1927, p. 57]

Common on fine, clean sand and moderately so on clean gravel and shell, 15-35 fms. (R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): Mewstone Gds. (R.A.T., S.P.): Stoke Pt. Gds.; Rame-Eddystone Gds.; Looe-Eddystone Gds. (S.P.): occasionally 7 to 40 miles S.W. of Eddystone, 40-52 fms. (Crawshay, 1912, p. 334): one from Whitsand B., 7.6.22 (E.F.)

Breeding: Hand Deep, dredged, ripe male and female, 5.7.09; one large specimen, Plymouth trawler, male practically ripe, gonads very full but no ripe sperm, 4.4.13 (A.J.S.): one male and two females, gonads ripe, one spent female, 5.7.20; one nearly ripe hermaphrodite, 7.7.21 (H.G.N.)

Family **Luidiidae****LUIDIA SANSI** Düben and Koren [*Mortensen*, 1927, p. 69]

Eddystone Grounds (E.J.A., J.T.C., R.A.T.): single specimen, Rame Hd. N.N.W. Eddystone W., 12.6.23 (E.F.): single specimens 18 and 39 miles S.W. of Eddystone, 42-52 fms. (Crawshay, 1912, p. 334)

Breeding: a nearly ripe specimen off Polperro, trawl, 10.3.14 (A.J.S.): ripe specimen 5.7.20 (H.G.N.): fertilisation made in early June, 1914 (J.G. for J.F.G.): late larvae in plankton, Aug.-Oct., 1930 (M.V.L.)

LUIDIA CILIARIS (Philippi) [*Mortensen*, 1927, p. 70]

Rough ground, 21 to 38 miles S.W. of Eddystone, 42-53 fms. (Crawshay, 1912, p. 334)

Breeding : June (Mortensen, 1913, p. 7) : larvae in plankton, July-Oct. 1930 (M.V.L.)

Family **Poraniidae****PORANIA PULVILLUS** (O. F. Müller) [*Mortensen*, 1927, p. 90]

Occasionally at about 3 m. S. of the Breakwater (E.J.A., S.P.) : Eddystone Gds. (E.J.A., R.A.T.) : from 21 to 46 miles S.W. of Eddystone, 42-53 fms. occasionally (Crawshay, 1912, p. 335)

Breeding : Feb.-Apr. (R.A.T.)

Order SPINULOSA

Family **Asterinidae****ASTERINA GIBBOSA** (Pennant) [*Mortensen*, 1927, p. 98]

Common under stones at all rocky shore stations (S.P.) : single specimen $\frac{1}{2}$ m. S. of the Breakwater in 7 fms. (R.A.T.)

Breeding : May-June (W.G.) : 1893, ripe June 15th (E.W.M.C.B.) : several deposited eggs in Drake's Is. tank, 27.5.11 to 26.6.11, 12.5.15 (A.J.S.)

PALMIPES MEMBRANACEUS Linck [*Mortensen*, 1927, p. 100]

Eddystone Gds., moderately common (E.J.A., S.P.) : Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds., not uncommon ; about 3 m. S. of Breakwater, fairly common (S.P.) : occasional specimens 8-48 m. S.W. of Eddystone, 40-43 fms. (Crawshay, 1912, p. 335, as *Palmipes placenia*)

Breeding : 5.7.20, successful fertilisation (H.G.N.)

Family **Solasteridae****SOLASTER (CROSSASTER) PAPPOSUS** (L.) [*Mortensen*, 1927, p. 112]

Fairly common on coarse sand and gravel, 15-35 fms. (S.P.) : the most plentiful starfish in 1892 (W.G.) : Mewstone Gds., Rame-Eddystone Gds. (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : Stoke Pt. Gds. (S.P.) : Cattedwater, probably from trawl refuse (R.A.T., S.P.) : occasional specimens, some young, 21 to 39 miles S.W. of Eddystone, depth 42-52 fms. (Crawshay, 1912, p. 335)

Breeding : Larvae in West Ch. and off Mewstone, tow-net, 24/25.3.08 (J.C.Si) : in about a dozen males and a dozen females examined from Eddystone Gds., the ovaries were coloured from bright orange to a deep chocolate, but no eggs were nearing ripeness and only two males had motile spermatozoa, 26.5.10 (A.J.S.) : 3 out of 9 apparently ripe, 5.7.20 (H.G.N.)

Family **Echinasteridae****HENRICIA SANGUINOLENTA** (O. F. Müller) [*Mortensen*, 1927, p. 118]

Reny Rks., occasional specimens at extreme low water (R.A.T.) : not uncommon on the Mewstone Gds. (R.A.T., S.P.) : Eddystone Gds., occasionally on clean medium gravel (E.J.A., S.P.) : Stoke Pt. Gds. (S.P.) : occasional specimens, 21 to 39 miles S.W. of Eddystone, depth 43-49 fms. (Crawshay, 1912, p. 335). Ripe male, Wembury B., low tide, 15.3.10 ; one apparently ripe male, Looe Is., shore, out of 3 or 4, 26.1.21 (A.J.S.)

Order FORCIPULATA

Family Stichasteridae

STICHASTRELLA ROSEA (O. F. Müller) [*Mortensen*, 1927, p. 136]

3 small specimens, Looe-Eddystone, 1½-2½ ins. diameter, Agassiz trawl, 21.8.14; one small specimen, Rame bearing E. 7-8 miles, otter trawl, 26.8.14; one small specimen, about 2 ins. across, Bolt Tail bearing 7½ miles N.E., dredge, 29.6.14 (A.J.S.): in the last few years frequently in small numbers in Mewstone-Stoke Pt. district (A.J.S.): occasionally (J.H.O.)

Family Asteriidae

ASTERIAS RUBENS L. [*Mortensen*, 1927, p. 139]

Occurs below tide-marks at most stations, but in very varying abundance in different years; it is generally plentiful, but occasionally it would seem to be almost absent*; a smaller violet coloured variety is met with on coarse ground in 15-30 fms. (E.J.A., S.P.): one juv. Eddystone W. by S., 3½ m., 25.1.23 (E.F.): one from Erme Hd., N.E. by E., 2 m., 9.8.22 (E.F.): occasionally from 7 to 38 miles S.W. of Eddystone; depth 40-53 fms. (Crawshay, 1912, p. 335)

Breeding: Bipinnariae off Rame Hd., tow-net, 13.4.08; two specimens (J.C.S.): 18 fairly large specimens from crabbers (Sound) with gonads fairly well developed but not nearly ripe, 3.3.13; 15 specimens from New Gds., about 10 females nearly ripe, 5 males with gonad small, sperms inactive, 7.3.13 (A.J.S.). Ripe eggs 18.3.13; out of 100 from Cawsand Bay, all undeveloped April 28 and 29; the same a month before (A.J.S.): ripe, 29.3.22 (J.H.O.)

SALCOMBE. Only one specimen found, dredged in the Channel west of Salstone, in the Kingsbridge Est. (Allen & Todd, 1900, p. 187): quite common on Laminaria, Castle Rks., Salcombe Est., low water, spring-tide, 12.4.29 (G.M.S.)

MARTHASTERIAS GLACIALIS (L.) [*Mortensen*, 1927, p. 143]

More or less common at all stations below low-water mark, but somewhat uncertain in its occurrence (S.P.): large specimens generally from deeper water, 30 fms. and over (E.J.A.): the Breakwater, not uncommon; Yealm R., not uncommon in dredgings, large specimens occasionally on the Sand-bank (R.A.T.): Eddystone Gds., most abundant where *Chlamys opercularis* is plentiful (E.J.A.): occasionally, 7 to 46 miles S.W. of Eddystone, depth 40-43 fms. (Crawshay, 1912, p. 335)

Breeding: nearly ripe, 7.3.13 (A.J.S.): artificial fertilisations made March 10th (J.H.O.): large specimens in tank, hermaphrodite, length of each arm about 1 foot, each gonad contains large patches of male and female tissue, active sperm present, 29.4.26 (G.P.W.): ripe specimens Rame-Eddystone and Looe-Eddystone Gds., several days, 11/20.5.14 (A.J.S.): artificial fertilisations made, 12.6.13 (Mortensen, 1913, p. 3)

SALCOMBE. One very large specimen on the shore of the South end of the Salstone (Allen & Todd, 1900, p. 187)

*Not a single specimen of *A. rubens* was obtainable from towards the end of Oct. 1903 until well on in the spring of 1904, although repeated search was made for it both in the Sound and in Cawsand B. (S.P.)

Class **OPHIUROIDEA**Order **OPHIURAE**Family **Ophiotrichidae****OPHIOTRICH FRAGILIS** (Abildgaard) [*Mortensen*, 1927, p. 174]

Generally distributed and enormously abundant at certain stations, L.W.-35 fms. ; a small, solitary, greyish-coloured form occurs under stones on the shore ; in deeper water it grows to a much larger size and is usually very brilliantly coloured ; this latter form favours a coarse gravel ground and lives in such profusion where it occurs that the dredge will frequently come up completely filled with a practically pure gathering of this species alone (S.P.) : frequently, but nowhere in large numbers, from 8 to 46 miles S.W. of the Eddystone, 40-53 fms., many small specimens (Crawshay, 1912, p. 337) : occasionally in Bigbury B. (E.F.) : common, mussel bed off Neille Pt. opposite mouth of Tavy, 3.10.28 (E.P.) : Captain Lord reports that it has been much less abundant since the war. It is commonest in late summer.

Breeding : gonads ripe, Mar.-June (R.A.T.) : Aug.-Sept. (S.P.) : spawning, Oct. (R.A.T.) : young plutei present in tow-net in small numbers from 4.4.08 to 6.4.08 (J.C.S.) : ripe female and many nearly ripe, artificial fertilisations made by E.W.N., 20.7.09 ; sperm given off in tank, 19/20.7.09 (A.J.S.) : artificial fertilisation made and segmenting blastulae procured 29.8.19 (J.H.O.)

SALCOMBE. Never met with in numbers, but occasional specimens were found on the shore, generally under stones on the Salstone and amongst the rocks at the mouth of Salcombe Harbour ; a few dredged in the Kingsbridge Est. (Allen & Todd, 1900, p. 187)

Family **Ophiocomidae****OPHIOCOMINA NIGRA** (Abildgaard) [*Mortensen*, 1927, p. 178 = *Ophiocoma* of the 1904 Fauna List]

This form is almost invariably found associated with *Ophiotrich fragilis*, but is generally far less abundant than the latter species, although occasionally it is the predominant form ; at most stations the specimens are brilliantly coloured, but sometimes, as on the Mallard Sh., it is possible to get a pure gathering of the typical black form (S.P.) : Mallard Sh., in abundance together with *Antedon* (W.G., S.P.) : Millbay Pit, common ; Mewstone 'Echinoderm' Gd. (R.A.T., S.P.) : Eddystone Gds., occasional specimens on stony and rocky ground, 15-30 fms. (E.J.A., S.P.) : Rame-Eddystone Gds. ; Stoke Pt. Gds. ; not uncommon but very local (S.P.) : frequently, but never in large numbers, from 8 to 48 miles S.W. of the Eddystone ; 40-52 fms. (Crawshay, 1912, p. 336, as *Ophiocoma*) : one specimen Erme Hd., N.E. by E., 2 miles, 9.6.22 ; four specimens Down-derry N.N.E. Looe N. by W., $\frac{1}{2}$ W., 31.5.22 (E.F.)

Breeding : Gonads ripe, Apr., July ; spent individuals, Sept. (S.P.) : 1899, ripe May 25th, June 2nd, June 22nd (E.W. Mc B.) : artificial fertilisations successful, 13.7.09 (E.W.N.) ; 11.8.11 (J.H.O.) ; nearly ripe obtained, 3.10.11 (J.H.O.)

OPHIOPSILA ARANEA Forbes [*Mortensen*, 1927, p. 180]

Mewstone Ledge, not uncommon in rock crevices (E.J.A., R.A.T., S.P.): Stoke Pt. Gds., fairly common in crevices of the local red rock, especially in old *Pholadidea* crypts, 15-25 fms. (S.P.): Mewstone Ledge-Stoke Pt. Gds., 19.7.09 (A.J.S.): Stoke Pt. dredging gds., 1 specimen, 20.11.28 (G.A.S., J.H.O.)

Breeding: gonads ripe in Aug. (R.A.T.): one unripe female and arms of another, 5 miles S. of Mewstone, 7.4.11 (J.H.O.)

Family **Ophiactidae****OPHIACTIS BALLI** (Thompson) [*Mortensen*, 1927, p. 200]

Common, but rather local, 15-35 fms., in crevices of rock and stones and on *Chaetopterus* tubes (S.P.): Millbay Ch. and Pit, not uncommon (R.A.T., S.P.): Asia Sh. (T.V.H., S.P.): Mewstone Gds.; Rame-Eddystone Gds. (R.A.T., S.P.): abundant around the Eddystone (E.J.A.): Stoke Pt. Gds., not uncommon (S.P.): few to many specimens from 8 to 48 miles S.W. of Eddystone, depth 40-41 fms. (Crawshay, 1912, p. 336)

Breeding: gonads ripe, Sept. (S.P.): July, 1913 (Mortensen, 1913, p. 11): female with practically ripe eggs, male with motile spermatozoa, Eddystone bearing S.E. by S., 2 m., 13.7.09 (A.J.S.)

Family **Amphiuridae****AMPHIURA CHIAJEI** Forbes [*Mortensen*, 1927, p. 212]

Millbay Ch., single specimen (R.A.T.): 2 m. S. of Breakwater, single specimen (E.J.A.): single specimen, New Gds., 12.10.10 (J.H.O.)

AMPHIURA SECURIGERA (Düben and Koren) [*Mortensen*, 1927, p. 217]

Eddystone Gds., ca. 30 fms., July, 1913, gonads apparently not ripe (T.M.)

AMPHIURA FILIFORMIS (O. F. Müller) [*Mortensen*, 1927, p. 214]

Single specimen, 2 m. W.S.W. of the Eddystone (E.J.A.): one specimen, Mewstone, 19.12.08; one specimen Cawsand Bay, 9.9.02; May 30th Rame-Eddystone; eggs of 5 or 6 nearly ripe (J.H.O.): abundant off Borough Island, Bigbury Bay, 1923 (E.F.)

ACROCNIDA BRACHIATA (Montagu) [*Mortensen*, 1927, p. 218]

Common in muddy sand on a *Zostera* bed S. of Batten Castle (E.J.A., R.A.T., S.P.): Jennycliff B., single specimen (R.A.T.)

SALCOMBE (Allen & Todd, 1900, p. 187). Salcombe shore, 31.5.23, 2.6.23, males and females kept in a dish, several males and one female spawned and yielded segmenting and very yolky eggs; one specimen nearly ripe, Salcombe Estuary, 24.3.13; one specimen Salcombe, in sand at low tide spawned in bowl during the night, but eggs not fertilised, 27.3.21; nearly ripe specimens Salcombe, 3.4.23 (J.H.O.)

AMPHIPHOLIS SQUAMATA (Delle Chiaje) [*Mortensen*, 1927, p. 221=Amphiura of 1904 Fauna List]

Common at most stations in the Sound, L.W.-20 fms. (S.P.): Rame-Eddystone Gds., 27 fms., single specimen (R.A.T.): Yealm R. (S.P.): Mewstone, 19.12.28 (J.H.O.)

Breeding: May-Sept. (W.G.)

Family **Ophiolepidae**

OPHIURA TEXTURATA Lamarck [*Mortensen*, 1927, p. 236=*O. ciliaris* of 1904 Fauna List]

Common, 15-35 fms., on gravel and sand (S.P.): most frequent on fine hard sand (E.J.A.): Mewstone Gds. (R.A.T., S.P.): Stoke Pt. Gds. (S.P.): Rame-Eddystone Gds. (E.J.A., R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): Looe-Eddystone Gds. (S.P.): occasionally from 8 to 39 miles S.W. of Eddystone, 40-52 fms. (Crawshay, 1912, p. 335)

Breeding: May (R.A.T.): Aug. (S.P.): ripe male and female, Rame-bearing N., 3 miles, 15.7.09 (A.J.S.): nearly ripe, 29.8.19 (J.H.O.)

OPHIURA ALBIDA Forbes [*Mortensen*, 1927, p. 239]

Lives generally on coarser soil and is less abundant than *O. texturata* (E.J.A.): Mewstone Gds. (R.A.T.): Stoke Pt. Gds., fairly common; Rame-Eddystone Gds. (S.P.): Eddystone Gds. (E.J.A., S.P.): occasionally, from 8 to 46 miles S.W. of Eddystone, 40-50 fms. (Crawshay, 1912, p. 336)

OPHIURA AFFINIS Lütken [*Mortensen*, 1927, p. 244]

One specimen Bolt Hd., shell gravel, 1895 (E.J.A.): four specimens, 7 miles, and one 29 miles, S.W. of Eddystone, 42-47 fms. (Crawshay, 1912, p. 336)

Class **ECHINOIDEA**Order **DIADEMATOIDEA**Family **Echinidae**

PSAMMECHINUS MILIARIS (Gmelin) [*Mortensen*, 1927, p. 294]

Common under stones at all shore stations, and frequently met with in dredgings, L.W.-35 fms. (S.P.): specimens from the deeper water stations are usually small; largest ones from Church Reef, Wembury B. (R.A.T.): Yealm R., very common near the oyster beds, 1895 to about 1900 (E.J.A.): one specimen 8 miles, and one 48 miles S.W. of Eddystone, 40-51 fms. (Crawshay, 1912, p. 338)

Breeding: May (W.G.): 1893, ripe, June 15th (E.W. MC B.): plutei fairly common in tow-net from 6.4.08 (J.C.S.): a few mature males and females, Mewstone (shore collecting) N. side, 26.6.07; a few specimens collected, all spent, 27.6.07 (L.R.C.): ripe males and females, Wembury B. (A.J.S.): Cawsand B., ripe male and female, 3.3.11 (W. DE M.): ripe female less than a halfpenny across, Wembury B., 14.3.11, this fertilised by sperm of *E. esculentus* and healthy blastulae obtained (W. DE M.): ripe male and female, 19 specimens, Wembury B., 30.5.19 (A.J.S.): 5.4.23 (J.H.O.): small specimens, not exceeding two thirds normal size for full grown shore specimens, from Mewstone Gds., and especially E. 1 at 70 m. depth, fully ripe, 100 per cent. fertilisation obtained, July and Aug. 1927, E. 1 batch Aug. 16 (A.D.H.): 1912, '22, '23, '24, '25, '26, '27, '28, ripe about middle of May to middle of June (E. W. MC B.)

SALCOMBE. Not uncommon in dredge material obtained in the Channel between Salstone and mouth of Harbour (Allen & Todd, 1900, p. 188): Castle Rks., Salcombe Est., low-water mark, spring-tide, 12.4.29 (G.M.S.)

ECHINUS ESCULENTUS L. [*Mortensen*, 1927, p. 297]

Queen's Gd., occasionally ; moderately common in 15-35 fms., especially on the Mewstone 'Echinoderm' Gd. ; Rame-Eddystone Gds. (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : Mewstone Ledge ; Stoke Pt. Gds., common (S.P.) : Cattewater, probably from trawl refuse (R.A.T., S.P.) : frequent, from 8 to 48 miles S.W. of Eddystone, 40-52 fms. (Crawshay, 1912, p. 337)

The Polychaete *Scalisetosus assimilis* is often found among the oral spines of this species (R.A.T.)

Breeding : gonads ripe, Mar. (R.A.T.) : May (S.P.) : fully formed plutei found in tow-net on 6.4.08 and were fairly common as long as plankton was examined (until 16.4.08) (J.C.Si.). 1898, ripe May 25th ; 1899, ripe about June 1st ; 1912, ripe about middle of May (E.W.Mc B.) : one female and 2 males ripe, trawlers, 21.2.12 (W. DE M.) : 2 females, 2 males fully ripe, one male doubtful, three looked spent (2 females, 1 male), from Plymouth trawlers trawling from Dodman-Eddystone (outside), 6.5.13 (A.J.S.) : ripe male, Eddystone Fishing Gds., 10.3.20 (A.J.S.) : ripe, Mewstone N. to N.E. 2 to 2½ miles and Mewstone Ledge, 22.3.23 (J.H.O.) : between Mewstone and Stoke Pt., between 60 and 70 good large specimens brought in in two batches, several ripe males and one female, all the rest spent or nearly so, 12.5.27 (A.J.S.) : 10 miles S.S.W. of Eddystone, ripe males and females, 18.5.27 ; during the fortnight before this it had been very difficult to get any ripe specimens, nearly all were spent (A.J.S.) : off the Mewstone, ripe males and females, 1.6.27 (A.J.S.) : Eddystone Gds., 29.8.27, batch of 38 examined, all except one full grown, i.e. 10 cm. or more in diameter ; gonads usually about one quarter to one fifth usual size in ripe individuals but in some very much larger ($\frac{3}{2}$), fat globules present in all, degenerating ova in some ; in 15 specimens young oocytes visible of various sizes, one specimen contained sperm morulae and some ripe sperm (A.D.H.)

ECHINUS ACUTUS Lamarck [*Mortensen*, 1927, p. 300]

Not uncommon in 15-35 fms., chiefly on the finer grounds (R.A.T., S.P.) : more common in deeper water, where it replaces *E. esculentus* (E.J.A.) : Mewstone Gds. (R.A.T.) : Stoke Pt. Gds. (S.P.) : Rame-Eddystone Gds. (R.A.T., S.P.) : Eddystone Gds. (E.J.A., S.P.) : Looe-Eddystone Gds. (S.P.) : occasionally from 21 to 31 m. S.W. of Eddystone, 40-47 fms. (Crawshay, 1912, p. 337)

The Polychaete *Flabelligera affinis* is often found associated with this form, crawling among its spines (R.A.T.) : Captain Lord reports that it has disappeared since 1920 : three large specimens were brought in by trawlers from off the Dodman 13/21.6.29 (A.J.S.)

Breeding : in July (W.G.)

PARACENTROTUS LIVIDUS (Lamarck) [*Mortensen*, 1927, p. 306]

Wembury B., April 1911 and 29.6.11, identified by Dr. Mortensen (J.H.O.) : Wembury B., one fairly large specimen, 1.4.15 ; Wembury B., back of Mewstone, 2 specimens, one ripe female, 2.4.19 (A.J.S.)

Order CLYPEASTROIDEA**Family Fibulariidae****ECHINOCYAMUS PUSILLUS (O. F. Müller)** [*Mortensen*, 1927, p. 316]

Not uncommon on gravel bottom, 10-35 fms. (S.P.): Queen's Gd., occasionally (R.A.T., S.P.): Mewstone Ledge shell gravel, very occasionally; Mewstone 'Amphioxus' Gd., moderately common (R.A.T.): Eddystone Gds. (E.J.A.): occasionally, from 8 to 34 miles S.W. of Eddystone, 40-49 fms. (Crawshay, 1912, p. 338): dredged commonly from finer deposits in the district, chiefly on shelly gravel (E.F.)

Order SPATANGOIDEA

Family Spatangidae

SPATANGUS PURPUREUS O. F. Müller [Mortensen, 1927, p. 328]

Moderately common in coarse sand and gravel, 15-35 fms. (S.P.): Eddystone Gds. (E.J.A., S.P.): Stoke Pt. Gds.; Rame-Eddystone Gds. (R.A.T., S.P.): Looe-Eddystone Gds. (S.P.): Mewstone Ledge (R.A.T.): Queen's Gd. (S.P.): occasionally, from 20 to 49 miles S.W. of Eddystone, mostly small, 40-49 fms. (Crawshay, 1912, p. 338): one specimen Mewstone N.N.W., $1\frac{1}{2}$ miles, shelly gravel with some mud, 18.1.23; one young specimen Eddystone S.S.E. $\frac{1}{2}$ E., $\frac{1}{2}$ mile, clean shell gravel, 20.6.22 (E.F.)

Breeding: ripe gonads, July 1913 (Mortensen, 1913, p. 14): two specimens from Mewstone Gds. shot out sperm on being preserved, 20.5.25; one other specimen spawned in laboratory about a fortnight before (J.H.O.)

The mollusc *Montacuta substriata* is very commonly attached to the oral spines of this species (R.A.T., S.P.)

ECHINOCARDIUM CORDATUM (Pennant) [Mortensen, 1927, p. 331]

Not uncommon buried in sand between tide-marks in the Yealm Estuary; and in Rum B., on the *Zostera* beds; occasionally dredged in Cawsand B., and outside in 15-35 fms., on fine sand (R.A.T.): Rame-Eddystone Gds. (R.A.T., S.P.): Eddystone Gds. (E.J.A., S.P.): Looe-Eddystone Gds.; common 6 m. S. of Breakwater (S.P.): plentiful in Whitsand Bay, on a level exposed by ordinary 15.6 tides, March, 1919 and 12.4.22 (J.H.O.): generally on the sandy grounds outside the Breakwater (E.F.)

SALCOMBE. Common in the clean sand between the *Zostera* beds to the north of Millbay (Allen & Todd, 1900, p. 188): on *Zostera* bank, Millbay side opposite Marine Hotel, and in bare sand below *Zostera* bank, not ripe, 24.3.13; shore opposite Marine Hotel, one largish female with gonads large and ripe, an unusual number of small specimens, 3.4.23 (J.H.O.): 31.5.23, shore, Salcombe, June 1st, fertilised, June 2nd ca. 90 per cent. blastulae (J.H.O.)

The mollusc *Montacuta ferruginosa* is found associated with this species (R.A.T.)

ECHINOCARDIUM FLAVESCENS (O. F. Müller) [Mortensen, 1927, p. 334]

Looe-Eddystone Gds., rare, associated with *E. pennatifidum*, but its habitat is probably on finer ground than that of the latter species (S.P.): occasionally in shelly gravel, 1923 (E.F.): three specimens 8 miles W. of Rame Head in about 28 fms., just about ripe, 10.7.11 (J.H.O.)

ECHINOCARDIUM PENNATIFIDUM Norman [Mortensen, 1927, p. 335]

Not uncommon 15-30 fms.; Rame-Eddystone Gds.; Stoke Pt. Gds.; Looe-Eddystone Gds. (S.P.): five specimens in rough ground, 39 miles S.W. of Eddystone, 49 fms., 29 to 41 mm. in length (Crawshay, 1912, p. 339)

Class **HOLOTHURIOIDEA**

Order ASPIDOCHIROTA

Family **Holothuriidae**

HOLOTHURIA FORSKALI Delle Chiaje [*Mortensen*, 1927, p. 393=*H. nigra* of 1904 Fauna List]

Common on the Mewstone Gds. on clean gravel (E.J.A., R.A.T., S.P.): occasional specimens have been taken in Whitsand B., off Penlee, Melampus Sh. (R.A.T.): Stoke Pt. Gds., not uncommon (S.P.): Eddystone Gds., on the clean shell gravel immediately adjacent to the rocks (E.J.A.): Queen's Gd. (S.P.)

Breeding: gonads ripe, Apr. (S.P.): July, Dec. (R.A.T.): July 1913 (Mortensen, 1913, p. 17): auricularia larvae probably belonging to this species, 8 miles S. of Mewstone abundant from 8/16.3.08 (J.C.S.): Sound, 14.1.13 (J.H.O.)

Order DENDROCHIROTA

Family **Cucumariidae**

CUCUMARIA ELONGATA Düben and Koren [*Mortensen*, 1927, p. 399]

Fairly common in the district on all the muddy grounds from 5-30 fms. (J.H.O.): fairly common on Rame mud, 1923 (E.F.): 1928 (M.V.L.): 2 specimens $2\frac{1}{4}$ miles S. of Penlee, muddy bottom, 12.9.28 (G.A.S.)

SALCOMBE. In muddy sand on *Zostera* bed, northern end of Millbay, 26.3.29 (R.S.H., J.H.O.)

Breeding: June-July or later (J.H.O.)

CUCUMARIA HYNDMANI Thompson [*Mortensen*, 1927, p. 400]

Occasional specimens not uncommon on coarse ground; Stoke Pt. Gds.; Rame-Eddystone Gds.; Looe-Eddystone Gds. (S.P.): one specimen, 18 miles S.W. of Eddystone, 43 fms. (Crawshay, 1912, p. 339)

CUCUMARIA SAXICOLA Brady and Robertson [*Mortensen*, 1927, p. 401]

Not uncommon on rocky ground, in crevices and under stones, L.W.-10 fms. (S.P.): common on the shore; also taken at a depth of a few fms. (J.H.O.): larvae, probably belonging to this species, tow-net, West Ch., 26.5.11, these were to all appearances similar to those obtained from *C. saxicola* 3 weeks earlier (J.H.O.): one specimen deposited eggs, 12.5.15 (A.J.S.): male and female, Wembury B. W., 21.3.20, extruded sperm and eggs, 24.3.20 (J.H.O.): ripe males and females Wembury, Mewstone, 26.3.21; Wembury, 2.4.23 (H.G.N.): spawning period about May (J.H.O.)

SALCOMBE. Common, Castle Rks., Salcombe Est., L.W. mark, spring-tide, 12.4.29 (G.M.S.)

CUCUMARIA NORMANI Pace [*Mortensen*, 1927, p. 402]

Not uncommon on rocky ground in crevices and under stones, L.W.-10 fms. (S.P.): fairly common on the shore, also taken at a depth of a few fathoms (J.H.O.): one female ripe, from shore, Cawsand B., 3.3.11 (A.J.S., J.H.O.): two fairly large specimens Wembury B., gonad only slightly developed as though recently spawned, 20.4.13; spawning period about May (J.H.O.)

CUCUMARIA LACTEA (Forbes) [*Mortensen*, 1927, p. 402]

Frequently in some numbers on Hydroids, Algae, etc., from rocky ground and from the trawling grounds ; below tide-marks to 25 fms. (S.P.) : often abundant on rocky ground off the Mewstone (E.J.A.) : Yealm R., not uncommon (R.A.T.) : common on the shore and also taken at a depth of a few fathoms (J.H.O.)

SALCOMBE. Abundant under rocks and in crevices, Castle Rks., Salcombe Est., low-water mark, spring-tide, 12.4.29 (G.M.S.)

THYONE FUSUS (O. F. Müller) [*Mortensen*, 1927, p. 406]

Occasional specimens from Millbay Ch., Cattewater, Cawsand B. ; not uncommon on the Mewstone Gds., and occasionally met with in 15-35 fms. on other grounds (R.A.T.) : two specimens, 17 miles S.W. of Eddystone, 42 fms. (Crawshay, 1912, p. 339)

THYONE RAPHANUS Düben and Koren [*Mortensen*, 1927, p. 407]

Nine specimens on the muddy sand or in muddy gravel, in depths from 12 to 30 fms., 1911-12, 2 m. S. of Mewstone, 1½ m. off Yealm Pt., 3 m. S. of Rame, 5 to 5½ m. S. ½ E. of Rame, and Rame-Eddystone Trawling Gds. ; none ripe, spawn probably in winter (J.H.O.) : one specimen 20 m. S.W. of Eddystone, 44 fms. (Crawshay, 1912, p. 339)

THYONE INERMIS Heller [*Mortensen*, 1927, p. 408]

One very large specimen about 7 inches long and 1½ inches in diameter at the middle of the body, Eddystone Gds., 7.4.08 ; smaller specimen on Rame-Eddystone Gds., Rame Hd. bearing N.N.E. 3 miles, 16.4.08 (J.C.Si.)

THYONE ROSCOVITA Hérouard [*Koehle*, 1921, p. 166]

Plymouth district, not uncommon (G.P.W.) : 3 m. S. of Revelstoke Pt., 21 fms., 11.12.28, coarse mesh dredge (G.A.S.)

PSEUDOCUCUMIS MIXTA Östergren [*Mortensen*, 1927, p. 410]

One specimen, Eddystone Gds., 27.2.88 (A.M.N.) : anterior end of body only (tentacles yellow, not purple as in Bell's specimens), Mewstone Ledge, 15.4.08 (J.C.Si.) : 2 specimens, 9 miles S. by W. of Rame Hd., 7.8.14 (J.H.O. identified by G.P.W.) : one large specimen, Rame-Eddystone W.S.W., 6 miles from Draystone Buoy, white with a few scattered dark brown spots, 13.12.26 (G.P.W.)

Order APODA

Family **Synaptidae****LEPTOSYNAPTA INHAERENS** (O. F. Müller) [*Mortensen*, 1927, p. 427]

Drake's I., occasional specimens ; Yealm R., not uncommon between tide-marks in coarse, loose sand (R.A.T.) : Rum Bay, below castle, 18.11.10 (J.H.O.) : North Bank, mouth of Yealm, 1.4.15 ; 16 specimens, mouth of Yealm, N. shore, in *Zostera* bed, 6.3.16 (A.J.S.)

Breeding : Yealm R. sand-bank, 8-10 obtained by digging, 5.3.08, put into dish with sand, shed many eggs, 7.3.08 (A.J.S.)

SALCOMBE. Not uncommon in *Zostera* banks on east and west sides of harbour (Allen & Todd, 1900, p. 187) : four nearly ripe females, shore opposite Marine Hotel, 9.4.13 (A.J.S.)

LABIDOPLAX DIGITATA (Montagu) [*Mortensen*, 1927, p. 433]

Rame-Eddystone Gds., occasional specimens (R.A.T.): two specimens, with 8 *Leptosynapta inhaerens*, mouth of Yealm, N. side, in *Zostera* bed, low-water (16 ft. tide), 3.3.15; 4 or 5 specimens with 18-20 *Leptosynapta inhaerens*, mouth of Yealm, N. side, in *Zostera* bed, low water (16 ft. 8 in. tide), 1.4.15 (A.J.S.)

SALCOMBE. One large specimen (10 inches long) and several smaller opposite Marine Hotel, in horizontal burrows in sand and mud just above low-water mark, 17.4.08 (J.C.si.)

Phylum **TUNICATA**

Order ASCIDIACEA

Family **Molgulidae**

EUGYRA ARENOSA (Alder & Hancock) [*Lacaze-Duthiers*, 1877, p. 648 ; *Ärnbäck-Christie-Linde*, 1928, p. 69]

From four positions (one to three specimens) 8-17 m. S.W. of Eddystone, 42-43 fms. (Hartmeyer, in Crawshay, 1912, p. 379) : Queen's Gd., one specimen (Hartmeyer, 1914, p. 429) : deep water, free in sand or gravel, Rame-Eddystone ; gravel, Station E. 1 (N.J.B.)

Breeding : July-Aug. (N.J.B.)

MOLGULA TUBIFERA (Örsted) [*Hartmeyer*, 1923, p. 56, as *M. manhattensis* ; *Lacaze-Duthiers*, 1877, p. 593, as *M. ampulloides* ; *Ärnbäck-Christie-Linde*, 1928, p. 15]

Queen's Gd., one specimen ; Eddystone, one specimen (Hartmeyer, 1914, p. 429) : Yealm R. (Hotel Corner) ; Millbay Pier (N.J.B.) : small beach, 100 yds. above Antony Creek, L.W., spring-tide, on stone ; St. John's Lake, opposite Rifle Range, 16.9.28, hand (E.P.)

SALCOMBE. Salstone (N.J.B.)

Breeding : throughout the year (N.J.B.)

MOLGULA OCLATA Forbes [*Lacaze-Duthiers*, 1877, p. 516, as *Anurella*]

Mewstone Ledge (T.V.H.) : not uncommon in clean, fine gravel off Mewstone (R.A.T.) : Eddystone Gd. (E.J.A.) : from three positions, 17-29 m. S.W. of Eddystone, 42-46 fms. (Hartmeyer, in Crawshay, 1912, p. 379) : Queen's Gd., 6 specimens ; Millbay Channel, 1 specimen ; Yealm, Hotel Corner, Sand-bank, 2 specimens (Hartmeyer, 1914, p. 429) : Cawsand B. ; Rame-Eddystone ; deep water, free in sand or gravel, common but local (N.J.B.)

Breeding : July-Sept. (N.J.B.)

†**MOLGULA OCCULTA** Kupffer [*Lacaze-Duthiers*, 1877, p. 499, as *Anurella roscovita* ; *Ärnbäck-Christie-Linde*, 1928, p. 30]

In association with the last species, common but local (N.J.B.)

Breeding : at the same time as the last species (N.J.B.)

MOLGULA CITRINA Alder & Hancock [*Hartmeyer*, 1923, p. 97]

Ten individuals, average size 10 mm., together with three of *M. complanata*, Millbay Docks pontoon, 20.8.30, all breeding, viviparous (N.J.B.)

SALCOMBE. Two specimens from rocks at Sunny Cove Point, both breeding (N.J.B.)

MOLGULA SIMPLEX Alder & Hancock [1905-12, II, p. 51]

Eddystone Gds., on Chaetopterus tubes, not uncommon (E.J.A., N.J.B.) : from twelve positions, 8-30 m. S.W. of Eddystone, 40-47 fms. (Hartmeyer,*

*In Hartmeyer, 1923, pp. 56-61, *M. simplex* is included as a synonym of *M. manhattensis*, which in the present list is called *M. tubifera*. †While *M. occulta* is included in the same paper under *M. oculata*.

in Crawshay, 1912, p. 379) : deep water, fixed ; New Gds. occasionally on shells, crabs, etc. ; Mewstone and Stoke Pt. ; also occasional specimens free in muddy sand occurring with *M. oculata* (N.J.B.)

Breeding : May-Sept. 1926 and 1929 (N.J.B.)

MOLGULA COMPLANATA Alder & Hancock [*Lacaze-Duthiers*, 1877, p. 604, as *Ctenicella lanceplani* and *C. morgatae* ; *Hartmeyer*, 1923, p. 77]

Shallow water and intertidal, fixed, Asia Sh. ; common throughout the Sound, attached to stones and clinkers, usually in small recesses so that the extended siphons do not reach beyond the general surface, covered with sand grains ; average size when mature 3 to 4 mm., greatest dimension, but may attain 9 mm. (N.J.B.)

Breeding : July-September, at least ; is viviparous (N.J.B.)

Family **Pyuridae**

PYURA TESSELATA (Forbes) [*Lacaze-Duthiers and Delage*, 1892, p. 138, as *Forbesella* ; *Hartmeyer*, 1923, p. 174 ; *Ärnäck-Christie-Linde*, 1928, p. 81]

Rame-Eddystone Gds. (R.A.T.) : Eddystone Gds., single specimen on fine gravel (E.J.A.) : Mewstone 3 specimens (*Hartmeyer*, 1914, p. 429) : shallow to deep water ; Stoke Pt. (N.J.B.)

Breeding : Aug. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

PYURA SQUAMULOSA (Alder) [*Heller*, 1877, p. 253, as *Cynthia* ; *Ärnäck-Christie-Linde*, 1928, p. 82]

Mewstone Ledge, 10 specimens on shells and on *Microcosmus claudicans* ; Eddystone bearing S.E. by E., 1½ m., one specimen (*Hartmeyer*, 1914, p. 429)

PYURA SAVIGNYI (Philippi) [*Lacaze-Duthiers and Delage*, 1892, p. 88, as *Cynthia morus* ; *Ärnäck-Christie-Linde*, 1928, p. 82, as *Pyura (Cynthia) morus* Forbes]

From seven positions (one to four specimens), 7-28 m. S.W. of Eddystone, 40-49 fms. or over (*Hartmeyer*, in Crawshay, 1912, p. 379) : Queen's Gd., one specimen ; Mewstone Ledge, 7 specimens ; Rame-Eddystone Gds., 3 specimens ; Skerries, 4 specimens (*Hartmeyer*, 1914, p. 430) : shallow to deep water (N.J.B.)

Breeding : Aug. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

MICROCOSMUS CLAUDICANS (Savigny) [*Hartmeyer*, 1923, p. 183 ; *Lacaze-Duthiers and Delage*, 1892, p. 118, as *M. spinosus*]

Mewstone Ledge, 6 specimens ; between New Gds. Buoy and the Bridge, one specimen ; 1½ m. Eddystone, bearing S.E. by E., one specimen (*Hartmeyer*, 1914, p. 429)

Family **Styelidae**

POLYCARPA POMARIA (Savigny) [*Hartmeyer*, 1923, p. 273 ; *Lacaze-Duthiers and Delage*, 1892, pp. 196, 205, as *P. varians* and *tuberosa*]

Common at times in the Cattewater, but probably from trawl refuse ; very plentiful on one occasion 4 m. W.N.W. of Eddystone (R.A.T.) :

Eddystone Gds. (E.J.A.) : Mewstone Ledge (A.J.S.) : from twelve positions, 8-46 m. S.W. of Eddystone, 40-49 fms. (Hartmeyer, in Crawshaw, 1912, p. 379) : Millbay Channel, numerous specimens covered with *Distomus variolosus* and *Botryllus schlosseri* var. *polycyclus*; Queen's Gd., specimens; Mewstone Ledge, one specimen; Yealm, Hotel Corner—Sand-bank, ca. 12 specimens; 1½ m. Eddystone, bearing S.E. by E., 8 specimens; without further particulars, one specimen (Hartmeyer, 1914, p. 430) : deep water (N.J.B.)

Breeding : July-September (N.J.B.)

POLYCARPA FIBROSA (Stimpson) [*Lacaze-Duthiers and Delage*, 1892, p. 231, as *P. comata*; Hartmeyer, 1923, p. 263]

From five positions 8-32 m. S.W. of Eddystone (one or two), 40-49 fms. or over (Hartmeyer, in Crawshaw, 1912, p. 380) : Queen's Gd., one specimen; Yealm, Hotel Corner—Sand-bank, several specimens; Eddystone, 2 specimens; 1½ m. Eddystone bearing S.E. by E. 3 specimens (Hartmeyer, 1914, p. 430)

Breeding : May-Sept. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

POLYCARPA RUSTICA (L.) [*Lacaze-Duthiers and Delage*, 1892, p. 217]

Shallow water, common but widely scattered (N.J.B.)

Breeding : May-Sept. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

POLYCARPA GRACILIS Heller [*Lacaze-Duthiers and Delage*, 1892, p. 240=*P. tenera*]

Queen's Gd., 2 specimens; Mewstone Ledge, one specimen; Yealm Hotel Corner—Sand-bank, 9 specimens; nr. New Gds. Buoy, 4 specimens on *Zostera*; some specimens without further particulars (Hartmeyer, 1914, p. 430) : shallow water (N.J.B.)

DENDRODOA GROSSULARIA (van Beneden) [*Lacaze-Duthiers and Delage*, 1892, p. 178, as *Styelopsis*; Hartmeyer, 1923, p. 314]

Abundant on rocks between tide-marks, Jennycliff B., Rum B., Mt. Edgumbe; occasionally in dredgings from Millbay Ch., Queen's Gds., etc. (R.A.T.) : Eddystone Gds., the small squat variety not uncommon on shells, particularly *Pecten* shells, on the gravels W. of the Eddystone (E.J.A.) : Asia Sh., some specimens of the solitary form; Queen's Gd., several specimens of the solitary form; Mewstone Ledge, several specimens; Yealm, Hotel Corner—Sand-bank, many specimens; Skerries, one specimen (Hartmeyer, 1914, p. 431) : shallow water and intertidal; shore below Laboratory; common but local (N.J.B.)

Breeding : May-Oct. (W.G.); Apr.-Oct. (N.J.B.)

STOLONICA SOCIALIS Hartmeyer [1904, p. 215; *Lacaze-Duthiers and Delage*, 1892, p. 250, as *S. aggregata*=*Thylacium aggregatum*]

Millbay Ch., 2 colonies, single animals to 18 mm. long; Queen's Gd., 2 colonies; Mewstone Ledge, several colonies; Bridge Gd., one colony (Hartmeyer, 1914, p. 431) : Duke Rk., Queen's Ground, very plentiful, 1930 (N.J.B.)

Breeding : Aug.-Sept. (N.J.B.)

DISTOMUS VARIOLOSUS Gaertner [*Lacaze-Duthiers and Delage*, 1892, p. 263, as *Heterocarpa glomerata*; *Hartmeyer*, 1923, p. 333]

Millbay Ch., numerous colonies, on other Ascidians (*P. singularis*, *Botryllus schlosseri* var. *polycyclus*, *M. argus*) or Sponges; Asia Sh., 4 colonies; Queen's Gd., some colonies; Cawsand B., near Picklecombe Fort, 2 colonies round *Laminaria*; Mewstone Ledge, 2 colonies; 1½ m. Eddystone bearing S.E. by E., one colony (*Hartmeyer*, 1914, p. 431): shallow water and intertidal; common but widely scattered (N.J.B.)

Breeding: July-Sept. (N.J.B.)

SALCOMBE. Salstone, Bolt Hd., Sunny Cove Pt. (N.J.B.)

Family **Botryllidae**

BOTRYLLUS SCHLOSSERI (Pallas) var. *typica* [*Giard*, 1872, p. 624; *Hartmeyer*, 1923, p. 344]

Asia Sh.; Rame Hd.; Rame-Eddystone and other points (*Hartmeyer*, 1914, p. 431): shallow water and intertidal; Millbay Ch.; Queen's Gds.; shore below Laboratory; common but widely scattered (N.J.B.): Cargreen Hard, on *Fucus*; mussel bed above Saltash in main channel; Rat I., hand and dredge (E.P.)

Breeding: June-Aug. (N.J.B.)

SALCOMBE. Castle Rocks and dredgings from main channel (N.J.B.)

BOTRYLLUS SCHLOSSERI (Pallas) var. *polycyclus* [*Hartmeyer*, in *Crawshay*, 1912, p. 380; *Hartmeyer*, 1923, p. 349, as *Polycyclus polycyclus*]

From seven positions, 7-46 m. S.W. of Eddystone, 40-45 fms. (*Hartmeyer*, in *Crawshay*, 1912, p. 380): Millbay Ch., many colonies, on *P. singularis* (*Hartmeyer*, 1914, p. 431): shallow to deep water, Asia Sh.; Eddystone Gds.; Mewstone Ledge (N.J.B.)

Breeding: June-Sept. (N.J.B.)

BOTRYLLOIDES LEACHI Savigny [*Giard*, 1872, p. 632, as *Botrylloides rubrum*; *Hartmeyer*, 1923, p. 361, as *Botryllus*]

Under the Hoe, common under stones (w.g.): from four positions, single specimens, 7-12 m. S.W. of Eddystone, 40-43 fms (*Hartmeyer*, in *Crawshay*, 1912, p. 380): near New Gds. Buoy, 2 colonies (*Hartmeyer*, 1914, p. 431): shallow water and intertidal, common but widely distributed; shore below Laboratory (N.J.B.): Rat Is., R. Lynher (E.P.)

Breeding: Aug.-Oct. (w.g.)

SALCOMBE. Salstone (N.J.B.)

Breeding: July-Oct. (N.J.B.)

Family **Rhodosomatidae**

CORELLA PARALLELOGRAMMA (O. F. Müller) [*Hartmeyer*, 1901, p. 42=*C. larvaeformis* Hancock]

Off the Eddystone; Duke Rk., single specimen on small stone; 2 m. S. of Mewstone, single specimen on stone (w.g.): from five positions, 7-40 m. S.W. of Mewstone, 40-49 fms. (*Hartmeyer*, in *Crawshay*, 1912, p. 381): 1 m. Eddystone bearing N.W. one specimen; one specimen,

without particulars (Hartmeyer, 1914, p. 431) : deep water, Bridge Gd. ; Duke Rk. ; Eddystone Gds. ; Millbay Ch. ; Mewstone Ledge ; common on Cellaria from Eddystone Gds. (Chaetopterus region) (N.J.B.)

Breeding : July-Aug. (N.J.B.)

Family **Asciidiidae**

ASCIDIA MENTULA O. F. Müller [*Garstang*, 1891 c. p. 130]

Reny Rks., single specimen, var. *depressa* (W.G., R.A.T.) : Millbay Ch., Mewstone Gds. (E.J.A.) : from seven positions (one to three specimens), 7-39 m. S.W. of Eddystone, 40-49 fms. (Hartmeyer, in Crawshay, 1912, p. 381) : Promenade Pier, one specimen ; Millbay Pier, one specimen ; one specimen without further particulars (Hartmeyer, 1914, p. 432) : deep water, common but widely distributed, Mewstone Ledge ; Millbay Ch. ; Stoke Pt. (N.J.B.)

Breeding : Feb.-Nov. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

ASCIDIA CONCHILEGA O. F. Müller [*Garstang*, 1891, c. p. 125, as *A. depressa*]

Not uncommon on the Bolt Hd. shell gravel attached to stones (E.J.A.) : from twelve positions (one to four specimens), 8-30 m. S.W. of Eddystone, 40-49 fms. or over (Hartmeyer, in Crawshay, 1912, p. 381) : Plymouth, 9 specimens ; Promenade Pier, one specimen ; Millbay Pier, one specimen ; Millbay Ch., one specimen ; Queen's Gd., one specimen ; Rame-Eddystone, many specimens ; Eddystone, one specimen ; some specimens, without further particulars (Hartmeyer, 1914, p. 432) : low water to deep water (N.J.B.)

Breeding : Jan.-Dec., probably all the year (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

ASCIDIA VIRGINEA O. F. Müller [*Hartmeyer*, 1901, p. 36, as *A. venosa*]

Eddystone Gds., occasional specimens (E.J.A.) : from twelve positions, 8-43 m. S.W. of Eddystone, 40-52 fms. or over (Hartmeyer, in Crawshay, 1912, p. 381) : Plymouth, 2 specimens ; Millbay Pier, 2 specimens ; Rame-Eddystone, 2 specimens ; Eddystone, 1 specimen (Hartmeyer, 1914, p. 432) : New Gds. (N.J.B.)

Breeding : June-Oct. (N.J.B.)

***ASCIIDIELLA ASPERSA** (O. F. Müller) [*Herdman*, 1881, p. 281 ; 1894, p. 433, Pl. 34 ; *Hartmeyer*, 1924, p. 81]

Common on the piles of the Promenade Pier, and in Millbay Dock (R.A.T.) : Cattewater (T.V.H.) : occasionally between tide-marks, Rum B. (R.A.T.) : inner basin, Millbay Docks, on floating stages and buoys ; Millbay Dock, tidal basin, from the bottom of a ship which has been in dock all the summer, 11.10.09 (A.J.S.) : Plymouth, 3 specimens ; Millbay Ch., 3 specimens ; Queen's Gd., one specimen Duke Rk., one specimen ; Yealm, Hotel Corner—Sand-bank, one specimen ; Stoke Pt., several specimens ; Rame-Eddystone, many specimens ; 1 m. Eddystone bearing N.W., 4 specimens (Hartmeyer, 1914, p. 432) : intertidal to deep water ; Millbay Dock (N.J.B.) : mussel bed above Saltash, half mile above Hole's Hole ; various places in R. Lynher as far as beach 100 yds. above Antony Creek, hand and dredge, June-Oct. 1928 (E.F.)

Breeding : seems to depend on size exceeding $1\frac{1}{4}$ inches, not on season, Jan.-Dec. (N.J.B.) : Yealm R., 23-3.20 (tadpoles obtained) : Gt. Western wharf, Mar. 1922 (a few tadpoles obtained) (J.H.O.) : G. W. Wharf, 7.4.20, inner basin, G. W. Docks, 12.4.20 (tadpoles obtained) (H.O.)

SALCOMBE. Salstone, specially abundant in upper regions of Salcombe Estuary, 2 fms. throughout year (N.J.B.)

*ASCIDIELLA SCABRA (O. F. Müller) [*Herdman*, 1881, p. 284 ; 1894, p. 433]

Duke Rk., Yealm R. (w.g.) : Eddystone Gds., generally present, but particularly abundant when *Sertularella gayi* is plentiful growing at the base of the stem of the hydroid (E.J.A., S.P.) : Mewstone Gds. (A.J.S., R.A.T., S.P.) : Rame-Eddystone Gds. (R.A.T., S.P.) : Stoke Pt. Gds. (S.P.) : shallow to deep water, common but widely scattered ; Millbay Ch. ; Queen's Gds. ; Stoke Pt. ; Yealm R. (Hotel Corner) ; common on Cellaria everywhere (N.J.B.)

Breeding : May-Sept. (N.J.B.)

SALCOMBE. Upper part of estuary (N.J.B.)

*PHALLUSIA MAMMILLATA (Cuvier) [*Traustedt*, 1883, p. 456]

Moderately common in dredgings from Yealm R. ; Mewstone Ledge : and occasionally from the Duke Rk., Cattewater, and W. Channel ; not uncommon washed up on the Yealm Sand-bank between tide-marks (R.A.T.) ; low water to deep water, common but widely scattered, Cawsand B. ; Stoke Pt., Yealm R. (Hotel Corner) (N.J.B.)

Breeding : Jan.-Dec. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

Family Cionidae

CIONA INTESTINALIS (L.) [*Hartmeyer*, 1904, p. 297 = *C. fascicularis* Hancock]

Until 1901 this ascidian was comparatively rare, having only been recorded occasionally from Millbay Ch., the Cattewater, Yealm R., Mewstone Ledge, and the Eddystone Gds., and the specimens were never of greater length than 4-5 inches ; in that year the species became for a time very abundant in Millbay Docks, completely covering the piles and rafts, and many of the specimens from the Inner Dock were of extremely large size, measuring as much as a foot in length (E.J.A.) : Stoke Pt. Gds., small specimens, fairly common (S.P.) : Millbay Dock, tidal basin, from bottom of a ship which had been in the docks for the past 18 months, 11.10.09, breeding but spermatozoa not very active, eggs appeared to be quite ripe (A.J.S.) : from 11 positions, 7-40 m. S.W. of Eddystone, 40-52 fms. (Hartmeyer, in Crawshay, 1912, p. 383) : Millbay Ch., one specimen ; Mewstone, 2 specimens (Hartmeyer, 1914, p. 432) : low water to deep water, common but widely scattered (N.J.B.) : shore on hard ground W. of Ince Castle, R. Lynher (E.P.)

Breeding : Millbay Docks, 1.10.27 (A.J.S.) : G. W. Docks, inner basin, 12.4.20, nearly all ripe, the eggs readily fertilised artificially (tadpoles obtained) (H.O.) : Apr.-Sept. (N.J.B.) : July (J.T.C.) : June-July (R.A.T.) : Aug.-Sept. (w.g.)

*Lindsay and Thompson (*Journ. Mar. Bio. Assoc.*, xvii, 1930, p. 4) consider that the generic name *Ascidia* should be retained.

DIAZONA VIOLACEA Savigny [*Garstang*, 1891, b, p. 63]

Eddystone Gds. (w.g., R.A.T.) : Stoke Pt. Gds. (w.g.) : between Stoke Pt. and Mewstone, dredge, 30.6.09, eggs given off when being preserved (A.J.S.) : deep water, Mewstone Ledge (N.J.B.)

Breeding : July-Sept., but occasionally commencement of breeding delayed till Sept., oviparous (N.J.B.)

Family **Perophoridae****PEROPHORA LISTERI** Forbes [*Garstang*, 1891, b, p. 58 ; *Hartmeyer*, 1924, p. 88]

Rocks under Hoe, abundant (w.h.) : Queen's Gd. ; Millbay Pit ; Asia Sh. (A.J.S.) : Duke Rk. ; Yealm Estuary (w.g.) : tidal pools and shallow water ; Yealm R. (Hotel Corner) (N.J.B.)

Breeding : July-Sept. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

Family **Polycitoridae****CLAVELINA LEPADIFORMIS** (O. F. Müller) [*Garstang*, 1891, b, p. 51]

Drake's I., occasionally at extreme low tide (w.g., R.A.T.) : Queen's Gd. (R.A.T., S.P.) : Mt. Edgcumbe (w.g., T.V.H.) : Duke Rk. (w.g., R.A.T.) : Rum B. ; Millbay Ch. ; Mewstone Ledge ; Wembury B. (T.V.H.) : very rarely, in 10-15 fms. off the Mewstone and Penlee (w.g.) : low water and shallow water, common, but local, Millbay Docks (N.J.B.)

Breeding : June (w.g.) : July (R.A.T.) : June-Sept. (N.J.B.)

SALCOMBE. Salstone ; Sunny Cove Pt. (N.J.B.)

CLAVELINA AURILUCENS (Garstang) [1891, b, p. 53, as *Pycnoclavella*]

Mewstone Gds., attached to various objects from rough ground, 10-20 fms. ; once in Sound, forming a thin growth on the stems of red weeds (w.g.) : Mewstone Ledge, on *Eunicella* (R.A.T., S.P.) : numerous specimens on *Sidnyum elegans* and on shells, without further particulars (Hartmeyer, 1914, p. 432) : deep water ; Stoke Pt. (N.J.B.)

Breeding : Aug.-Sept., commencement may be delayed till Sept. (N.J.B.)

ARCHIDISTOMA AGGREGATUM Garstang [1891, a, p. 265]

Duke Rk., very abundant on stones ; 2 m. S. of Mewstone, one specimen (w.g.) : shallow water ; Duke Rk. (N.J.B.)

Breeding : June (w.g.) : July-Sept. (N.J.B.)

SALCOMBE. Salstone (N.J.B.)

HOLOZOA [DISTAPLIA] ROSEA (Della Valle) [*Giard*, 1886, p. 756]

On stones, dead shells, etc., at Duke Rk. and elsewhere (w.g.) : Queen's Gd., 2 colonies (Hartmeyer, 1914, p. 432) : shallow to deep water ; Duke Rk. ; New Gds. ; Asia Sh. (N.J.B.)

Breeding : July-Aug. (N.J.B.)

DISTAPLIA MAGNILARVA Della Valle [1882, p. 193]

One mature colony, dredged, Mewstone, 24.8.30 (N.J.B.)

Family **Synoicidae**

SIDNYUM TURBINATUM Savigny [*Giard*, 1872, p. 639, as *Circinalium coneres*; *Hartmeyer*, 1924, p. 216]

Drake's Is., on reef leading to the Bridge, on roots of *Laminaria* at extreme low water; Picklecombe, E. of the Fort, on roots of *Laminaria*; Devil's Pt., Stonehouse, under a stone, low water, spring-tide; Duke Rk., in crevices of stones; Wembury B., under overhanging rocks (w.g.); Millbay Ch., some colonies; Yealm, Hotel Corner—Sand-bank, some colonies (*Hartmeyer*, 1914, p. 434): shallow water and intertidal; Wembury (N.J.B.)

Breeding: July-Sept. (N.J.B.)

SALCOMBE. Castle Rocks, Sunny Cove Pt. (N.J.B.)

SIDNYUM ELEGANS (*Giard*) [1872, p. 638, as *Fragarium*]

Duke Rk., on stones (w.g.); Millbay Ch., many colonies; near New Gds. Buoy, many colonies; many colonies, without further particulars (*Hartmeyer*, 1914, p. 434)

AMAROUCIUM PUNCTUM *Giard* [1873, p. 495; *Hartmeyer*, 1924, p. 213]

Single colony, 3 m. S.W. of Mewstone (w.g.): Queen's Gd., several long-stalked colonies; near New Gds. Buoy, several colonies; Stoke Pt., some colonies; not all typically stalked; Bridge Gd., some colonies (*Hartmeyer*, 1914, p. 434): shallow to deep water, Mewstone Ledge; Millbay Docks (N.J.B.)

AMAROUCIUM NORDMANNI Milne-Edwards [*Giard*, 1872, p. 636]

Church Reef, Wembury B., one specimen (w.g.): 3 colonies, without particulars, probably belonging to this species (*Hartmeyer*, 1914, p. 434): low water and shallow water, common but local; Queen's Gds.; Rame-Eddystone (N.J.B.)

Breeding: June (w.g.): June-Sept. (N.J.B.)

SALCOMBE. Salstone, Sunny Cove Pt. (N.J.B.)

AMAROUCIUM DENSUM *Giard* [1872, p. 637]

Mewstone Ledge (N.J.B.)

APLIDIUM PALLIDUM (*Verrill*) [*Giard*, 1872, p. 636, as *A. zostericola*; *Hartmeyer*, 1924, p. 188=*A. lacteum* Huitfeldt-Kaas and *Amaroucium pallidum* *Verrill*]

Plymouth, attached to the stalks of *Bowerbankia* or *Amathia* (w.g.): Queen's Gd., many colonies; Duke Rk., many colonies; Rame, 2 colonies; nr. New Gds. Buoy, many colonies (*Hartmeyer*, 1914, p. 434): shallow to deep water (N.J.B.)

MORCHELLIUM ARGUS (Milne-Edwards) [*Herdman*, 1891, p. 625]=*Morcheloides alderi* *Herdman*.

Common everywhere on rocks between tide-marks (R.A.T.): Millbay Ch. (T.V.H.): Millbay Docks, on wooden piles (w.g.): Duke Rk. (E.J.A., R.A.T.): Yealm R. (T.V.H., R.A.T.): Millbay Ch., 4 colonies with *Distomus variolosus*; Asia Sh., several colonies; Duke Rk., many colonies, the largest 32 mm. long; Yealm, Hotel Corner—Sand-bank, some colonies;

nr. New Gds. Buoy, one colony ; Bridge Gd., 6 colonies (Hartmeyer, 1914, p. 434) : intertidal and shallow water (N.J.B.)

Breeding : Sept. (w.g.) : June-Sept. (N.J.B.)

SALCOMBE. Castle Rocks, Sunny Cove Pt., and Salstone (N.J.B.)

POLYCLINUM AURANTIUM Milne-Edwards [*Giard*, 1872, p. 642, as *P. sabulosum* ; *Hartmeyer*, 1924, p. 184]

Queen's Gds., some colonies on *Zostera* ; Rame, many colonies on *Zostera* ; nr. New Gds. Buoy, some colonies ; several colonies without further particulars (Hartmeyer, 1914, p. 433) : shallow to deep water (N.J.B.)

Breeding : July-Sept. (N.J.B.)

SALCOMBE. Sunny Cove Pt. (N.J.B.)

Family Didemnidae

DIPLOSOMA LISTERIANUM (Milne-Edwards), var. *gelatinosum* (Milne-Edwards) [*Lahille*, 1890, p. 107]

From 5 positions, 8-39 m. S.W. of Eddystone, 40-49 fms. (Hartmeyer, in Crawshay, 1912, p. 383) : Asia Sh., many colonies on *Distomus variolosus* ; Millbay Pier, 5 colonies ; nr. New Gds. Buoy, many colonies on *Zostera* ; Stoke Pt., 2 colonies (Hartmeyer, 1914, p. 433) : shallow to deep water ; Aquarium tanks ; Millbay Ch. ; occasionally on *Lepralia* etc., Mewstone Ledge and Eddystone (N.J.B.)

Breeding : May-Oct. (N.J.B.)

TRIDIDEMNUM TENERUM Verrill [*Giard*, 1872, p. 648, as *Didemnum cereum* ; *Hartmeyer*, 1924, p. 130=*Didemnopsis variabile*]

Millbay Pier Head, one colony ; Mewstone Ledge, 2 colonies ; Rame-Eddystone, one colony on *Ascidiella aspersa* ; Stoke Pt., several colonies ; Duke Rk., one colony ; nr. New Gds. Buoy, 5 colonies on Hydroids (Hartmeyer, 1914, p. 433) : intertidal to deep water ; Yealm R., Hotel Corner (N.J.B.)

Breeding : June-Sept. (N.J.B.)

SALCOMBE. Castle Rocks (N.J.B.)

DIDEMNUM GELATINOSUM Milne-Edwards [*Alder & Hancock*, III, 1912, p. 32]

Occasionally on *Lepralia*, Mewstone Ledge and Eddystone (N.J.B.)

Breeding : July and Aug. 1930 (N.J.B.)

Family Doliolidae

DOLIOLUM NATIONALIS Borgert [1894, p. 21]

Tow-nettings, Aug., Sept., 1893, a considerable number (w.g.) : very abundant during 1895 (T.V.H.) : S. of the Eddystone, several specimens, Nov. 1904 (L.H.G.)

Order THALIACEA

Family Salpidae

SALPA FUSIFORMIS Cuvier [*Herdman*, 1888, p. 74 ; *Apstein*, 1894, p. 14]

Aggregated form at surface, N. of Eddystone, Aug. 1901 (R.A.T.) : Stations E. 1, L. 4, common, 9.7.25 ; L. 4, 4.9.25 (M.V.L.)

SALPA MUCRONATA Forskal [*Herdman*, 1888, p. 79 ; *Apstein*, 1894, p. 13]

Large shoals visited the Sound in 1893, from the middle of June to the end of the first week in July (w.g.)

Breeding : Aug.-Oct. (w.g.)

Order APPENDICULARIA

Family **Appendiculariidae**

OIKOPLEURA DIOICA Fol [*Lohmann*, 1896, p. 76]

Generally present in tow-nettings, occasionally common (R.A.T.) : common in tow-nettings especially in autumn and early spring (M.V.L.) : Hamoaze as far as No. 12 Buoy, opposite "Impregnable," surface, fine net, June-Oct. 1928 (E.P.)

Breeding : Mar.-Apr. (w.g.)

FRITILLARIA BOREALIS Lohmann [1896, p. 49]

Tow-nettings, Plymouth, Mar., Oct., Nov. 1899 (P.T.C.) : Eddystone, Aug. 1903 (L.H.G.) : occasionally with *Oikopleura* in autumn and spring (M.V.L.)

Phylum **ENTEROPNEUSTA**

Tornaria larvae of Balanoglossus [*Bourne*, 1889, p. 63]

First recorded by Bourne from the Sound ; often occur in abundance inside and outside the Sound in summer (M.V.L.) : five specimens from Sound, 8.7.12 (J.H.O.) : the adult has never been recorded from the district.

Phylum **CEPHALOCHORDA**

AMPHIOXUS (=BRANCHIOSTOMA) **LANCEOLATUS** (Pallas) [*Sedgwick*, II, 1905, p. 10]

On clean, rough shell-gravel inside and outside the Sound ; New Gds., Mewstone Gds., Eddystone Gds. (E.F., G.A.S., A.J.S.)

Breeding : Young in tow-nettings occasionally, Aug., Sept. (M.V.L.)

Phylum **VERTEBRATA**Class **PISCES**

Sub-Class CHONDRICHTHYES

Order CYCLOSTOMI

Family **Petromyzontidae**

PETROMYZON MARINUS L. [Day, 1880-84, II, p. 356, Pl. 178]

Taken at Weir Head in River Tamar, July 1928 (E.F.): specimen 23 cm. long, from Mr. Howard Dunn, Mevagissey, 30.5.30 (E.F.)

Family **Myxinidae**

MYXINE GLUTINOSA L. [Day, 1880-84, II, p. 364, Pl. 179, 3]

Day records it from Weymouth, and states that it is rare in Cornwall. No recent records can be given (E.F.)

Order ELASMOBRANCHII

Sub-Order *Selachii*Family **Scyllidae**

SCYLLIUM CANICULA (L.)=*Scylliorhinus caniculus* (L.) [Day, II, 1880-84, p. 309, Pl. 159, 1]

Trawled fairly commonly (E.F.)

Young stages, Ford, 1921, p. 486, f. 8-15. Eggs cannot be collected from the shore—the Laboratory procedure is to remove eggs from parent fish obtained from market; a fair percentage of these will remain alive under circulation in aquarium (E.F.)

SCYLLIUM CATULUS Cuvier=*Scylliorhinus stellaris* (L.) [Day, 1880-84, II, p. 312, Pl. 159, 2]

Fairly common, but not in large numbers (E.F.)

Young stages, Ford, 1921, p. 492, f. 5-7 and 16-19; eggs may be collected at low-water mark at Wembury at the exceptionally good spring tides about Easter, and again in September (E.F.)

Family **Carchariidae**

GALEUS VULGARIS Fleming=*Galeus canis* Bonaparte=*Galeorhinus galeus* (L.) [Day, 1880-84, II, p. 292, Pl. 153]

Occasional specimens landed at Plymouth market where, with *Mustelus vulgaris*, they are known as "Sweet Williams" (E.F.)

Young stages, Ford, 1921, p. 502

CARCHARIAS GLAUCUS (L.) [Day, 1880-84, II, p. 289, Pl. 152]

Only a very occasional specimen from commercial fishing vessels (E.F.)

MUSTELUS VULGARIS Müller & Henle [Day, 1880-84, II, p. 295, Pl. 155]

On occasions a few of these can be seen on Plymouth Market where they are known, together with *Galeus vulgaris*, as "Sweet Williams" (E.F.)

Young stages, Ford, 1921, p. 502

Family **Lamnidae**

LAMNA CORNUBICA (Gmelin) = *Isurus cornubicus* (Gmelin) [Day, 1880-84, II, p. 297, Pl. 156]

Occasional specimens caught in drift-nets (E.F.)

ALOPIAS VULPES (Gmelin) [Day, 1880-84, II, p. 300, Pl. 157]

Very occasionally caught in drift-nets (E.F.)

SELACHE MAXIMA (Gunnerus) = *Cetorhinus maximus* (Blainville) [Day, 1880-84, II, p. 303, Pl. 158]

The Basking Shark is to be observed fairly frequently ; on two occasions since the war skinned carcasses have drifted into Plymouth Sound ; reliable eye-witnesses report numerous large sharks, upwards of 30 ft. in length, off Knap Buoy outside Sound (W. Searle), off Looe, Fowey and off Dartmouth, May and June, 1930 (E.F.)

Family **Spinacidae**

ACANTHIAS VULGARIS Risso = *Squalus acanthias* L. [Day, 1880-84, II, p. 315, Pl. 160, 2]

Common off Eddystone, where a regular autumn line fishing is conducted, particularly by Mevagissey fishermen ; they are also landed in varying numbers by drifters during the winter drift-net fishery at Plymouth (E.F.)

Young stages, Ford, 1921, p. 470, f. 1 and 2.

CENTRINA SALVIANI Risso [Day, 1880-84, II, p. 319, Pl. 161]

Rare ; S. by E. Gribbon Hd., received from Howard Dunn, S.I.14 (R.S.C.)

Family **Echinorhinidae**

ECHINORHINUS SPINOSUS (Gmelin) [Day, 1880-84, II, p. 323, Pl. 162, 2]

Rare ; recorded by Day.

Family **Rhinidae**

RHINA SQUATINA (L.) = *Squatina vulgaris* Risso [Day, 1880-84, II, p. 326, Pl. 163]

A haul of the trawl in Cawsand Bay will generally yield one or two specimens ; occasionally taken in trawl on other grounds (E.F.)

Sub-Order *Batoidei*Family **Torpedinidae**

TORPEDO NOBILLIANA Bonaparte = *Torpedo hebetans* Lowe [Day, 1880-84, II, p. 331, Pl. 164]

One living specimen received at Laboratory on July 15th, 1928, where it remained alive until Aug. 13th 1928 (E.F.) : single specimens in the Aquarium at long intervals previously (E.J.A.)

Family **Rajidae***A. Rajae clavatae*

RAJA CLAVATA L. [Clark, 1926, p. 24, Pl. 8-10]

The commonest ray at 30 fms. and under ; marked congregation of adult females on rough ground off Borough Island in Bigbury B. in Feb. 1930 (G.A.S.)

Young stages, Clark, 1922, p. 593, f. 1-4.

RAJA MACULATA Montagu=*Raja montagui* Fowler=*R. asterias* Moreau [Clark, 1926, p. 11, Pl. 3 a and b]

Generally distributed but less numerous than *R. clavata* within 30 fathom line ; moderately common beyond 30 fms. (G.A.S.)

Young stages, Clark, 1922, p. 601, f. 5-7.

RAJA NAEVUS Müller & Henle=*Raja miraletus* Couch (= *R. miraletus* L. ?) [Clark, 1926, p. 32, Pl. 14 and 15]

Commonest in deep water, 20 m. south and by west of the Eddystone (G.A.S.)

Young stages, Clark, 1922, p. 618, f. 13-15.

RAJA MICROCELLATA Montagu [Clark, 1926, p. 22, Pl. 5b]

Taken inshore, particularly Bigbury B. and Salcombe area (G.A.S.)

Young stages, Clark, 1922, p. 615, f. 11 and 12.

RAJA CIRCULARIS Couch=*Raja falsavela* Bonaparte [Clarke, 1926, p. 34, Pl. 16-18]

Rare, and from deep water (G.A.S.)

Young stages, Clark, 1926, p. 34, Pl. 13b (egg-capsule).

RAJA UNDULATA Lacépède=*Raja mosaica* Moreau [Clark, 1926, p. 20, Pl. 6 and 7]

Not uncommon 20 miles south of the Eddystone, but appears never to be taken inside the Eddystone (G.A.S.)

Young stages, Clark, 1922, p. 627, f. 18 (egg-capsule only)

RAJA BLANDA Holt & Calderwood=*R. brachyura* Lafont=*R. maculata* Couch=*R. asterias* Le Danois [Clark, 1926, p. 15, Pl. 4a and b]

Commonest species in deep water, 15 to 20 miles outside the Eddystone ; occasional specimens taken inside (G.A.S.)

Young stages, Clark, 1922, p. 608, f. 8-10.

B. Rajae laevis

RAJA FULLONICA L. [Clark, 1926, p. 37, Pl. 19-21a]

Fairly common in deep water outside Eddystone ; occasional specimens taken inside (G.A.S.)

Egg-capsule and early stages not yet described.

RAJA BATIS L. [Clark, 1926, p. 50, Pl. 31b-33]

Occasionally taken in the district (G.A.S.)

Young stages, Clark, 1922, p. 629, f. 19 (egg-capsules only); Clark, 1926, pl. 31b and 32a.

RAJA OXYRHYNCHUS L. = *Raja vomer* Fries [Clark, 1926, p. 55, Pl. 34-36]

Rare (G.A.S.)

Young stages, Clark, 1926, p. 55, Pl. 36b (egg-capsule)

RAJA MARGINATA Lacépède [Clark, 1926, p. 47, Pl. 28-31a]

Occasionally taken in deeper water outside Eddystone (G.A.S.)

Young stages, Clark, 1922, p. 632, f. 20 (egg-capsules only): Clark, 1926, Pl. 28a and 29a.

Family **Trygonidae**

TRYGON PASTINACA (L.) [Day, 1880-84, II, p. 350, Pl. 175]

Rare (E.F.): one specimen taken in trawl from Inner Eddystone Gds., 15.5.13 (A.J.S.): another off Looe, 22.5.30 (E.F.)

Family **Myliobatidae**

MYLIOBATIS AQUILA (L.) [Day, 1880-84, II, p. 352, Pl. 176]

Rare, Day, *loc. cit.*: one specimen taken off Plymouth, 19.1.98 (E.W.L.H.)

Sub-Class OSTEICHTHYES

Order GANOIDEI

ACIPENSER STURIO L. [Day, 1880-84, II, p. 280, Pl. 150, 1-3]

Occasional specimens landed (E.F.): inside Eddystone, 24.2.13 (R.S.C.): Western English Channel, S. T. "Pelican," 16.12.13 (R.S.C.)

Order TELEOSTEI

Sub-Order *Physostomi*

i. *Clupeiformes*

Family **Clupeidae**

CLUPEA HARENGUS L. [Day, 1880-84, II, p. 208, Pl. 138, 2]

Commercial drift fishery Nov. to Feb. Spawning, Sept.-Mar., principally Dec.-Jan. (E.F.)

Young stages, Lebour, 1921, p. 448, f. 10-12; early post-larvae Dec.-Feb. or Mar.; metamorphosing stages, Apr.-May in estuaries; O-group, in estuaries (Ford, 1928, p. 305)

CLUPEA PILCHARDUS Walbaum [Day, 1880-84, II, p. 224, Pl. 139, 1]

Common during winter drift-net fishery at Plymouth (E.F.)

Eggs, Apr.-Oct. (E.F.): young stages, Lebour, 1921, p. 433, f. 4-6: post-larvae, May to end of year (F.S.R.): metamorphosing stages and young silvery forms in estuaries during summer (E.F.)

CLUPEA SPRATTUS L. [Day, 1880-84, II, p. 231, Pl. 139, 2]

Common in winter seine-net fishery in estuaries (E.F.)

Eggs, Jan.-July (E.F.): young stages, Lebour, 1921, p. 439, f. 7-9 : post-larvae commonest in April (F.S.R.): metamorphosing stages and immature specimens common in estuaries during summer (E.F.)

CLUPEA FINTA Cuvier [Day, 1880-84, II, p. 236, Pl. 141]

Occasional specimens (E.F.)

CLUPEA ALOSA L. [Day, 1880-84, II, p. 234, Pl. 140]

Occasional specimens (E.J.A., E.F.)

ENGRAULIS ENCRASICHOLUS (L.) [Day, 1880-84, II, p. 206, Pl. 138, 1]

Occasional specimens during summer and autumn (E.F.)

Family **Salmonidae**

SALMO SALAR L. [Day, 1880-84, II, p. 66, Pl. 110 and 111, 1]

Net fishery in rivers Tamar and Lynher (E.F.): Tamar and tributaries (E.P.)

2. *Apodes*

Family **Anguillidae**

ANGUILLA VULGARIS Turton [Day, 1880-84, II, p. 241, Pl. 142]

In estuaries; Tamar, up to Weir Head (E.P.): Elvers in R. Yealm (E.F.)

CONGER VULGARIS Cuvier [Day, 1880-84, II, p. 250, Pl. 142, 2]

Common, inshore to deep water (E.F.)

Young stages, Schmidt, 1909, p. 16, Pl. 1, 1-3

LEPTOCEPHALUS CONGRI VULGARIS has been several times recorded from the Plymouth area (Ford, 1920, b, p. 251]

Family **Muraenidae**

MURAENA HELENA L. [Day, 1880-84, II, p. 254, Pl. 143]

One off the Eddystone, 3.3.97 (E. W. L. Holt, J.M.B.A., Vol. V, 1897, p. 91]

Sub-Order *Physoclysti*

1. *Scombresociformes*

Family **Belonidae**

BELONE ACUS Risso [Day, 1880-84, II, p. 147, Pl. 127, 1, as *Rhamphistoma belone* (L.)]

Occasional specimens in summer (E.F.)

Young stages, Ehrenbaum, 1905, p. 134, f. 61: occasional specimens (M.V.L.) and also young adolescents taken at night by shining light from ship in Sound (E.F.)

Family **Exocoetidae**

EXOCOETUS VOLITANS L. [Day, 1880-84, II, p. 154, Pl. 128]

One specimen caught in drift-net in 1913 off Eddystone (R.S.C.): occasional specimens not infrequent off the Eddystone (E.J.A.)

2. *Syngnathiiformes*Family **Gasterosteidae**

SPINACHIA VULGARIS Flem. [*Day*, 1880-84, I, p. 246, Pl. 68, 5, as *Gasterosteus*]

Common in Sound, Barn Pool, mouth of Cattewater, mouth of Yealm (M.V.L.)

Breeding : spring ; nests of weed and Byrozoa found beyond low-water mark in spring ; eggs hatched May ; young reared to adolescent ; young stages, spring and early summer, adolescent stages summer and autumn (M.V.L.)

Family **Syngnathidae**

ENTELURUS AEQUOREUS (L.) [*Day*, 1880-84, II, p. 261, Pl. 144, 4]

Cawsand Bay, Yealm Estuary among *Zostera* (E.F.)

Young stages, Ehrenbaum, 1905, p. 326, f. 121, as *Nerophis*.

NEROPHIS OPHIDION (L.) [*Day*, 1880-84, II, p. 262, Pl. 144, 5]

Cawsand Bay, not uncommon among *Zostera* (E.F.)

Young stages, Ehrenbaum, 1905, p. 328, f. 122.

NEROPHIS LUMBRICIFORMIS (Pennant) [*Day*, 1880-84, II, p. 263, Pl. 144, 6]

Common under stones between tide-marks (E.F.)

Eggs, spring and summer. Young stages, Ehrenbaum, 1905, p. 329, f. 123.

SYNGNATHUS ACUS L. [*Day*, 1880-84, II, p. 259, Pl. 144, 1 and 2]

Common on *Zostera* beds, Yealm Estuary and Cawsand Bay (E.F.) : R. Tamar, up to Hole's Hole ; R. Lynher to Shevock Wood (E.P.)

Young stages, Ehrenbaum, 1905, p. 323, f. 118.

SYNGNATHUS TYPHLE L. [*Day*, 1880-84, II, p. 257, Pl. 144, 3, as *Siphonostoma*]

Common Cawsand Bay and Yealm Estuary on *Zostera* beds (E.F.)

Young stages, Ehrenbaum, 1905, p. 325, f. 120.

HIPPOCAMPUS GUTTULATUS Cuvier [*Day*, 1880-84, II, p. 265, Pl. 144, 7]

One specimen taken in the Sound, 29.II.13 (R.S.C.)

3. *Plectognathi*Family **Balistidae**

BALISTES CAPRISCUS Gmelin [*Day*, 1880-84, II, p. 268, Pl. 146]

A specimen 39 cm. long was taken from a lobster pot at Hallsands, South Devon, 18.8.1928 ; the fish presented a curious appearance on account of a "hood" of barnacles attached to the first dorsal spine. The barnacles were of three species, *Conchoderma virgatum*, *Lepas anatifera* and *Lepas hilli* (E.F.)

Family **Orthagoriscidae**

ORTHAGORISCUS MOLA (L.) [*Day*, 1880-84, II, p. 272, Pl. 148]

One off Batten Pier, 12.6.20 (R.S.C.) : one stranded at Millbrook, summer, 1919 (R.S.C.)

RANZANIA TRUNCATA (Retzius) [Day, 1880-84, II, p. 276, Pl. 149, as *Orthogoriscus truncatus*]

Day quotes Clogg who reports a specimen 25 inches long from Looe Harbour, 23.7.1883.

4. *Ammodytiformes*

Family **Ammodytidae**

AMMODYTES LANCEOLATUS Lesauvage [Day, 1880-84, I, p. 329, Pl. 92, 1]

Common ; may be dug from sand, or taken by trawl or seine at Whitsand Bay (E.F.)

Spawning, June-Aug. (R.S.C.) : Young stages, Ford, 1920, p. 242, f. 1 : Post-larvae July-Sept. (R.S.C.)

AMMODYTES TOBIANUS L. [Day, 1880-84, I, p. 331, Pl. 92, 2]

Common inshore ; may be dug from sand, or taken by trawl or seine at Whitsand Bay (E.F.)

Spawning, December-August (R.S.C.) : Young stages, Ford, 1920, p. 244, f. 2 : Post-larvae, January-October (F.S.R.)

5. *Atheriniformes*

Family **Atherinidae**

ATHERINA PRESBYTER Jenyns [Day, 1880-84, I, p. 225, Pl. 65, 1]

Occasional specimens ; taken by seine in Millbay Docks, 1923 (E.F.)

Young stages, Ehrenbaum, 1905, p. 129, f. 59 a, b and d, after Holt, 1899, Pl. 9. Falmouth and Penzance (Holt, 1899)

Family **Mugilidae**

MUGIL CHELO Cuvier [Day, 1880-84, I, p. 232, Pl. 67]

Occasional specimens (E.F.) : occasional large shoals in the Sound and estuaries (E.J.A.)

Young stages not identified, see Ehrenbaum, 1905, p. 132.

Family **Stromateidae**

LIRUS PERCIFORMIS Mitchell [Brown Goode, 1888, p. 223 and 224]

A specimen 35.5 cm. long was taken off Rame Head on Aug. 29, 1928, inside a floating bottled-milk case, and brought ashore alive ; it survived a few hours ; the case belonged to an American firm, was strongly built, and contained many *Lepas anatifera* ; the fish was underneath the bottle-grating, and could only have got out with great difficulty (E.F.) : Holt and Byrne (1903) record " a single specimen . . . captured off Penzance in Oct., 1874, drifting in a broken fish-box, from which it was apparently unable to escape ; it had been feeding on the barnacles which were growing in the box " (see also Day, 1880-84, I, p. 131, under *Pammelas perciformis*) ; a third specimen is recorded from Dingle Bay, 1871 (Holt & Byrne, 1903)

6. *Gadiformes*

Family **Gadidae**

GADUS AEGLEFINUS L. [Day, 1880-84, I, p. 283, Pl. 79]

Occasional specimens in trawl (E.F.)

Eggs and young stages not recorded.

GADUS MORRHUA L. = *Gadus callarius* L. [Day, 1880-84, I, p. 275, Pl. 78]

Occasional specimens in trawl (E.F.)

Eggs, rarely, February-March : Young stages, Ehrenbaum, 1905, p. 224, f. 84 ; Schmidt, 1905, p. 9, Pl. 1, f. 1-9 ; Schmidt, 1906 a, p. 4, f. 25-27 (E.F.) : Post-larvae, odd specimens, March (F.S.R.) : adolescent stage (O-group), occasionally, Barn Pool and Cawsand B. (E.F.)

GADUS LUSCUS L. [Day, 1880-84, I, p. 286, Pl. 80]

Common, especially on trawling grounds off Plymouth (E.F.)

Eggs, November-April ; Young stages, Ehrenbaum, 1905, p. 235, f. 87 ; Schmidt, 1905, p. 54, Pl. 3, f. 20-24 ; Schmidt, 1906a, f. 13-16 (E.F.) : post-larvae January-December, especially December (F.S.R.) ; adolescent stages in estuaries during summer (E.F.)

GADUS MINUTUS L. [Day, 1880-84, I, p. 288, Pl. 81]

Very common ; probably commonest gadoid on trawling grounds (E.F.)

Eggs, February-April ; Young stages, Ehrenbaum, 1905, p. 240, f. 88, Schmidt, 1905, p. 46, Pl. 3, f. 16-19, Schmidt, 1906a, p. 6, Pl. 1, f. 19-23 (E.F.) : Post-larvae, February-July, especially April (F.S.R.)

GADUS MERLANGUS L. (Day, 1880-84, I, p. 290, Pl. 82]

Common except at spawning time (E.F.)

Eggs, February-May ; Young stages, Ehrenbaum, 1905, p. 231, f. 86, Schmidt, 1905, p. 37, Pl. 2, f. 1-9, Schmidt, 1906a, p. 6, f. 24 (E.F.) : Post-larvae, March-August, especially May (F.S.R.)

Late post-larvae and early adolescents under umbrella of jelly-fish (Cyanea) ; O-group common in Sound and up estuaries in summer (E.F.)

GADUS POLLACHIUS L. [Day, 1880-84, I, p. 296, Pl. 83, 2]

Common at all sizes, especially on rocky ground (E.F.)

Eggs, January-April ; Young stages, Ehrenbaum, 1905, p. 249, f. 90, Schmidt, 1905, p. 17, Pl. 1, f. 25-30 (E.F.) : Post-larvae March to June, especially April (F.S.R.) ; adolescents O-I groups, very common inshore and in estuaries (E.F.)

GADUS VIRENS L. [Day, 1880-84, I, p. 293, Pl. 84]

Occasional specimens (E.F.)

Young stages, Ehrenbaum, 1905, p. 244, f. 89, Schmidt, 1905, p. 12, Pl. 1, f. 10-18 ; no records of post-larvae.

GADUS ESMARKII Nilsson [Smitt, 1892, p. 508]

27.8.1900, Hamoaze (W. Garstang, *Journal M. B. A.*, Vol. VI, p. 275)

MERLUCCIIUS MERLUCCIIUS (L.) [Day, 1880-84, I, p. 300, Pl. 85, 1]

Occasional small specimens from local waters ; steam-trawlers land catches from S.W. of Cornwall (E.F.)

Eggs not recorded ; Young stages, Ehrenbaum, 1905, p. 260, f. 94, Schmidt, 1907a, p. 3, Pl. 1, f. 1-13 (E.F.) : Post-larvae, June-November, especially October (F.S.R.)

PHYCIS BLENNOIDES (Brünn) [Day, 1880-84, I, p. 303, pl. 85, 2]

Two specimens trawled off Plymouth on 28.6.1929 ; one on 4.10.1929 (E.F.)

No records of eggs and young stages (E.F.)

MOLVA VULGARIS Fleming [Day, 1880-84, I, p. 305, Pl. 86]

Not uncommon, taken by trawl and on hook (E.F.)

Eggs, no records ; Young stages, Ehrenbaum, 1905, p. 267, f. 96, Schmidt, 1906 b, p. 3, Pl. 1, f. 14-25 (E.F.) : Post-larvae, April-July, especially June (F.S.R.)

ONOS MUSTELA (L.) [Day, 1880-84, I, p. 314, Pl. 88, 2, as Motella]

Common inshore (E.F.)

Spawning time, January-July (R.S.C.) : eggs of Onos sp. (including *O. mustela*) January-August ; Young stages, Ehrenbaum, 1905, p. 284, f. 102 (E.F.) : Post-larvae of Onos sp. March-July, especially April (F.S.R.) : early adolescents as " Mackerel Midges," seen in shoals during summer (E.F.)

ONOS CIMBRIUS (L.) [Day, 1880-84, I, p. 316, Pl. 89, 1, as Motella]

Rather rare (E.F.) : 3½ m. W.S.W. of Rame Hd., 27 fms. male juv., 2.9.13 (R.S.C.)

Eggs, Whitsand B., 3.5.10 (A.C.H.) : spawning time September (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 280, f. 101, Post larvae, not distinguished.

ONOS TRICIRRATUS (Bloch) [Day, 1880-84, I, p. 317, Pl. 88, f. 1-3, as Motella]

Moderately common (E.F.)

Spawning time, May-August (R.S.C.) : eggs of Onos sp. include *O. tricirratu*s, see *Onos mustela* ; Young stages, Onos sp., common in April, see *O. mustela*.

RANICEPS RANINUS (L.) [Day, 1880-84, I, p. 230, Pl. 90, 1]

Single specimens at irregular intervals (E.F.)

Eggs, June-August ; Young stages, Ehrenbaum, 1905, p. 289, f. 104, Schmidt, 1907 b, p. 4, Pl. 1, f. 9-13 (E.F.) : Post-larvae, June-August, especially July, not common (F.S.R.)

7. *Blenniiformes*

Family **Blenniidae**

BLENNIUS GATTORUGINE Bloch [Day, 1880-84, I, p. 198, Pl. 59, 1]

Common on rocky shores ; Wembury below 15 ft. tide level ; taken in trawl from 2-3 fms. in Barn Pool (w.s.)

Spawning period, spring ; Young stages, Ford, 1922, a, p. 691, f. 9-12 (E.F.) : Post-larvae, June-September, especially July (F.S.R.)

BLENNIUS PHOLIS L. [Day, 1880-84, I, p. 203, Pl. 60, 2]

Common between tide-marks on rocky shores, e.g. Wembury (E.F.)

Spawning period, spring and summer, eggs on stones in rock crevices at about 13 ft. tide-level (w.s.) ; Young stages, Ford, 1922 a, p. 689, f. 5-8 (E.F.) : Post-larvae May-August, especially July (F.S.R.)

BLENNIUS OCELLARIS L. [*Day*, 1880-84, I, p. 201, Pl. 59, 2]

Not uncommon offshore (E.F.)

Spawning period, late spring and summer, eggs and attendant parent in empty shells (*Buccinum*, large *Lamellibranchs*) or bottles trawled from Eddystone Gds. (E.F.) : Young stages, Ford, 1922 a, p. 688, f. 1-4 (E.F.) : Post-larvae, June-August, especially August (F.S.R.)

BLENNIUS GALERITA L. [*Day*, 1880-84, I, p. 200, Pl. 60, 1]

Rare (E.F.)

Young stages, Ehrenbaum, 1905, p. 84, f. 37 ; smallest 15.5 mm.

CHIROLOPHIS ASCANII (Walbaum) [*Day*, 1880-84, I, p. 206, Pl. 60, 3, as *C. galerita*]

Rare (E.F.)

Young stages, Ehrenbaum, 1905, p. 85, f. 38 : Post-larvae, Jan.-April, especially February (F.S.R.)

CENTRONOTUS GUNNELLUS (L.) [*Day*, 1880-84, I, p. 208, Pl. 61, 1, as *Pholis*]

Not uncommon on shores from about 15 ft. tide-level and below (w.s.)

Spawning period, Feb. and possibly later : Young stages, Ehrenbaum, 1905, p. 87, f. 39, occasionally (E.F.)

8. *Trachiniformes*Family **Trachinidae****TRACHINUS DRACO L.** [*Day*, 1880-84, I, p. 79, Pl. 30]

Occasional specimens in trawl on Eddystone Gds. (E.F.)

Spawning period, June-August (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 41, f. 18, Clark, 1920, p. 220, f. 9 ; Post-larvae (few), June-September (R.S.C.)

TRACHINUS VIPERA Cuvier & Valenciennes [*Day*, 1880-84, I, p. 81, Pl. 31]

Common inshore at Whitsand B. (E.F.)

Eggs, April-August ; Young stages, Ehrenbaum, 1905, p. 37, f. 17 (E.F.) : Post-larvae, June-September, especially August (F.S.R.)

Family **Callionymidae****CALLIONYMUS LYRA L.** [*Day*, 1880-84, I, p. 174, Pl. 54]

Very common on sandy trawling grounds (E.F.)

Spawning time, January-August (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 103, f. 46 ; Post-larvae of *Callionymus* species, including *C. lyra*, March-October, especially June (F.S.R.)

CALLIONYMUS MACULATUS (Rafinesque) [*Day*, 1880-84, I, p. 177, Pl. 53, 5]

Single specimens frequent on trawling grounds (E.F.)

Spawning time, June-August (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 106, f. 47, Fage, 1918, p. 132, f. 99-102 : Post-larvae, June-September (R.S.C.)

Family **Gobiesocidae**

LEPADOGASTER BIMACULATUS (Donovan) [Day, 1880-84, I, p. 192, Pl. 57, 3]

Not uncommon offshore (E.F.)

Spawning time, May-August (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 120, f. 53 : Post-larvae, April-September, especially July (F.S.R.)

LEPADOGASTER GOUANI Lacépède [Day, 1880-84, I, p. 189, Pl. 57, 1]

Common between tide-marks (E.F.)

Spawning time, spring and early summer, eggs laid on under surface of stones between tide-marks ; Young stages, Ehrenbaum, 1905, p. 123, f. 56 (E.F.) : Post-larvae, July-August (R.S.C.)

LEPADOGASTER DECANDOLLI Risso [Day, 1880-84, I, p. 191, Pl. 57, 2]

Rare (E.F.)

Young stages, Ehrenbaum, 1905, p. 122, f. 55 : Post-larvae, July-August (R.S.C.)

Family **Cepolidae**

CEPOLA RUBESCENS L. [Day, 1880-84, I, p. 213, Pl. 62]

Occasional specimens from trawling grounds (E.F.)

Spawning time, August (R.S.C.) : Young stages, Clark, 1920, p. 213, f. 8 ; Post-larvae, August, single specimens (R.S.C.) : June-August, especially August (F.S.R.)

Family **Lophiidae**

LOPHIUS PISCATORIUS L. [Day, 1880-84, I, p. 73, Pl. 29]

Common on trawling grounds, outside Sound (E.F.)

Eggs in long ribbons, occasionally floating inside and outside Sound, June, July (Lebour, 1925, p. 721, f. 1) : Young stages, Ehrenbaum, 1905, p. 46, f. 19 and p. 303, f. 108 b, as "Macrurus-Larve," Allen, 1917, p. 249, f. 8, Lebour, 1919 b, p. 12, f. 1, 1925, f. 2-4 : Post-larvae, March-August, especially July (F.S.R.)

9. *Gobiiformes*Family **Gobiidae**

GOBIUS NIGER L. [Holt & Byrne, 1901, p. 7 ; Lebour, 1919, p. 74, Pl. 4, f. 24 ; Petersen, 1917, Pl. 1, 6]

Not common, inside and outside waters (M.V.L.)

Young stages (Lebour *idem.*, Petersen, 1919, Pl. 1, f. 20-22, 2, 13 and 14)

GOBIUS (GOBIUS) PAGANELLUS L. [Holt & Byrne, 1901, p. 9 ; Lebour, 1919, p. 71, Pl. 4, 23]

Common between tide-marks, usually near low-water mark (M.V.L.)

Eggs on stones between tide-marks, March, through summer (M.V.L.)

Young stages (Lebour *ibid.*, p. 71, Pl. 4, figs. 1-23)

GOBIUS (GOBIUSCULUS) FLAVESCENS Fabricius [Holt & Byrne, 1901, p. 49, as *G. ruihensparri* Euphrasén ; Lebour, 1919, p. 69, Pl. 3, 14 ; Petersen, 1917, Pl. 1, 18]

Common inshore, often just below low-tide mark (M.V.L.)

Eggs on shells, spring and summer (M.V.L.): Young stages, Lebour, *ibid.*, p. 69, Pl. 3, f. 3-14, Petersen, 1917, Pl. 1, 13-18, Petersen, 1919, Pl. 1, f. 16-19, 2, f. 10-12.

GOBIUS (GOBIUSCULUS) MICROPS Kröyer [Holt & Byrne, 1901, p. 16, as estuarine race of *G. minutus*; Lebour, 1919, p. 64, Pl. 1, 6, and 2, 2; Petersen, 1919, Pl. 3, 1]

Common up the estuaries and in Chelson Meadow (M.V.L.)

Eggs laid in Laboratory, summer; Young stages, Lebour, *idem.*, Petersen, *ibid.*, Pl. 1, 1-5, 2, 1-3.

GOBIUS (GOBIUSCULUS) PICTUS Malm [Holt & Byrne, 1901, p. 18; Lebour, 1919, p. 60, Pl. 1, 4 and 5, and Pl. 2, 1; Petersen, 1919, Pl. 3, 3]

Common inshore (M.V.L.)

Eggs on shells, spring and summer (M.V.L.): Young stages, Lebour, *idem.*, Petersen, *ibid.*, Pl. 1, 11-15, 2, 7-9.

GOBIUS (POMATOSCHISTUS) MINUTUS Pallas [Holt & Byrne, 1901, p. 14; Lebour, 1919, p. 55, Pl. 1, 1; Petersen, 1919, Pl. 3, 2]

Common inshore (M.V.L.)

Eggs on shells, spring and summer; Young stages (Lebour, *idem.*, Petersen, *ibid.*, Pl. 1, 6-10, 2, 4-6)

GOBIUS (POMATOSCHISTUS) ELONGATUS Canestrini [Lebour, 1919, p. 58, Pl. 1, 2, 3]

Common in outside waters (M.V.L.)

Young stages (Lebour, *idem.*)

GOBIUS JEFFREYSI Günther [Holt & Byrne, 1901, p. 19; Lebour, 1919, p. 65, Pl. 3, 1 and 2]

Common in outside waters (M.V.L.)

Eggs on shells, summer; Young stages (Lebour, *idem.*)

LEBETUS SCORPIOIDES Winther [Smitt, 1892, I, p. 260, f. 67]

Rarely, in outside waters (M.V.L.)

Young stages (Petersen, 1919, p. 59, Pl. 1, 27-29 and 3, 4)

APHYA PELLUCIDA (Nardo) [Lebour, 1919, p. 75, Pl. 3, 15; Petersen, 1919, Pl. 3, 6]

Fairly common inside and outside the Sound (M.V.L.)

Young stages (Lebour, *idem.*; Petersen, *ibid.*, Pl. 1, 23, 2, 20 and 21)

CRYSTALLOGOBIUS NILSSONI Düb. & Kor. [Lebour, 1919, p. 78, Pl. 3, 16; Petersen, 1919, Pl. 3, 5, as *C. linearis*]

Common in outside waters (M.V.L.)

Eggs in Chaetopterus tubes, summer; Young stages (Lebour, *idem.*, Petersen, *ibid.*, Pl. 1, 24-26, 2, 15-19)

10. *Heterosomata*10a. *Pleuronectiformes*Family **Hippoglossidae**

HIPPOGLOSSUS VULGARIS Flem. [*Day*, 1880-84, II, p. 5, Pl. 94]

Rare (Day) : no recent records (E.F.)

Family **Pleuronectidae**

PLEURONECTES FLESUS L. [*Day*, 1880-84, II, p. 33, Pl. 105]

Common in estuaries, some at sea during spawning season (E.F.)

Eggs, February-April (E.F.) ; Young stages, Ehrenbaum, 1905, p. 161, f. 69 : Post-larvae, March to May, especially April (F.S.R.)

PLEURONECTES PLATESSA L. [*Day*, 1880-84, II, p. 25, Pl. 101]

Taken by trawl inside and outside Breakwater except during spawning period ; large specimens on " Corner " off Mewstone, smaller ones in Cawsand Bay ; adolescents also in estuaries (E.F.)

Eggs, December to May ; Young stages, Ehrenbaum, 1905, p. 156, f. 68 ; Post-larvae, metamorphosing stages to be obtained in estuaries (E.F.)

PLEURONECTES MICROCEPHALUS Donovan [*Day*, 1880-84, II, p. 28, Pl. 102]

Common on trawling grounds around Eddystone (E.F.)

Eggs, February-April ; Young stages, Ehrenbaum, 1905, p. 166, f. 70 ; Clark, 1920, p. 195, f. 2 (E.F.) : Post-larvae, March-July, especially May (F.S.R.)

PLEURONECTES CYNOGLOSSUS L. [*Day*, 1880-84, II, p. 30, Pl. 103]

Rare (E.F.)

PLEURONECTES LIMANDA L. [*Day*, 1880-84, II, p. 31, Pl. 104]

Common on trawling grounds outside and in the estuaries (E.F.)

Eggs, February-April ; Young stages, Ehrenbaum, 1905, p. 151, f. 67 (E.F.) : Post-larvae, March-July, especially May (F.S.R.)

RHOMBUS MAXIMUS L. [*Day*, 1880-84, II, p. 11, Pl. 96]

Commonest during winter drift-net fishing for herring, mackerel and pilchards (E.F.)

Eggs, June-August ; Young stages, Ehrenbaum, 1905, p. 194, f. 77 (E.F.) : Post-larvae, June-August (R.S.C.) : late stages and early bottom stages in Sound during summer, O-group in Whitsand B. (E.F.)

RHOMBUS LAEVIS (Rondelet) [*Day*, 1880-84, II, p. 14, Pl. 97]

Moderately common on outer trawling grounds (E.F.)

Eggs, May ; Young stages, Ehrenbaum, 1905, p. 198, f. 78 (E.F.) : Post-larvae, June-August (R.S.C.) : metamorphosing forms may usually be taken in Sound and Cattewater during August (E.F.)

LEPIDORHOMBUS WHIFF (Walbaum) [*Day*, 1880-84, II, p. 21, Pl. 98, as *Arnoglossus megastoma*]

Not common (E.F.)

Young stages (Ehrenbaum, 1905, p. 202, f. 79) not recorded.

SCOPHTHALMUS NORVEGICUS (Günther) [*Günther*, 1862, IV, p. 412 ; *Couch*, 1864, III, p. 175, Pl. 167, as Rhombus]

Not uncommon on trawling grounds (E.F.)

Spawning-time, March-June (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 210, f. 81 ; Petersen, 1909, p. 3, Pl. 1, f. 13-19, as Zeugopterus ; Post-larvae, April-July, especially May (F.S.R.)

SCOPHTHALMUS UNIMACULATUS (Risso) [*Day*, 1880-84, II, p. 17, Pl. 99, as Zeugopterus]

Rare (E.F.)

Spawning time, April-June (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 214, f. 82 ; Petersen, 1909, p. 3, Pl. 2, f. 20 and 21 : Post-larvae, May-July (F.S.R.)

ZEUGOPTERUS PUNCTATUS (Bloch) [*Day*, 1880-84, II, p. 18, Pl. 100]

Occasionally taken in trawl outside Breakwater (E.F.)

Spawning period, February-May (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 206, f. 80 ; Petersen, 1909, p. 3, Pl. 1, f. 1-6 : Post-larvae, March-June, especially May (F.S.R.)

ARNOGLOSSUS LATERNA (Walbaum) [*Kyle*, 1913, p. 64, figs. 9 and 9a]

Common on outside trawling grounds (E.F.)

ARNOGLOSSUS IMPERIALIS (Rafinesque) [*Kyle*, 1913, p. 99, f. 10]

Occasional specimen in trawl (E.F.)

ARNOGLOSSUS THORI Kyle [1913, p. 55, f. 8]

Occasional specimen in trawl (E.F.)

Eggs and post-larval stages of Arnoglossus species are very common at Plymouth, but have not been separately distinguished (*vide* Kyle, 1913, Ehrenbaum, 1905, Petersen, 1909)

10b. Soleaformes

Family Soleidae

SOLEA VULGARIS Quensel [*Day*, 1880-84, II, p. 39, Pl. 106]

Frequently taken in trawl, except during spawning period (E.F.)

Eggs, February-June (E.F.) ; Young stages (Ehrenbaum, 1905, p. 138, f. 63) : Post-larvae, March-June, especially April (F.S.R.) : adolescent stages in estuaries (E.F.)

SOLEA VARIEGATA (Donovan) [*Day*, 1880-84, II, p. 43, Pl. 108]

Frequently taken in trawl outside Breakwater (E.F.)

Eggs, February to July (E.F.) : Young stages, Ehrenbaum, 1905, p. 143, f. 64 ; Petersen, 1909, p. 13, Pl. 2, f. 35-37 ; Clark, 1920, p. 197, f. 3 : Post-larvae, April-July, especially May (F.S.R.)

SOLEA LUTEA (Risso) [*Day*, 1880-84, II, p. 44, Pl. 108, 2]

Not uncommon on trawling grounds (E.F.)

Eggs, March-July ; Young stages, Ehrenbaum, 1905, p. 145, f. 65 : Post-larvae, July (F.S.R.)

SOLEA LASCARIS (Risso) [Day, 1880-84, II, p. 42, Pl. 107]

Occasionally taken on trawling grounds (E.F.)

Spawning period, June-August (R.S.C.): Young stages, Ehrenbaum, 1905, p. 149, f. 66; Clark, 1914, p. 365, f. 5-11: Post-larvae, July to October, not common (F.S.R., R.S.C.)

II. *Scleroparei*

Family **Triglidae**

TRIGLA GURNARDUS L. [Day, 1880-84, I, p. 62, Pl. 25]

Common in bays and on trawling grounds, sometimes taken in large numbers (E.F.)

Spawning time, January-August (R.S.C.): Young stages, Ehrenbaum, 1905, p. 66, f. 28; Fage, 1918, p. 114, f. 80-81: Post-larvae, July-September (R.S.C.)

TRIGLA HIRUNDO Bloch [Day, 1880-84, I, p. 59, Pl. 24]

Common in the bays and outside (E.F.)

Spawning period, June (E.F.); Young stages, Ehrenbaum, 1905, p. 70, f. 29; Fage, 1918, p. 115, f. 82-83, as *T. corax*; not distinguished.

TRIGLA CUCULUS L. [Day, 1880-84, I, p. 58, Pl. 23]

Common on outer trawling grounds (E.F.)

Spawning time, April-August (R.S.C.): Young stages, Ehrenbaum, 1905, p. 73, f. 30, egg and newly hatched larvae only; not distinguished.

TRIGLA LYRA L. [Day, 1880-84, I, p. 64, Pl. 26]

Occasional specimens from deep water (E.F.)

Young stages (unidentified) not distinguished.

TRIGLA LINEATA L. [Day, 1880-84, I, p. 56, Pl. 22]

Taken in trawl outside Breakwater, especially on Looe-Eddystone Grounds (E.F.)

Spawning time June-July (R.S.C.): Young stages unidentified.

Family **Cottidae**

COTTUS SCORPIUS L. [Day, 1880-84, I, p. 49, Pl. 20, 1]

Occasionally taken in trawl outside Breakwater (E.F.)

Young stages (Ehrenbaum, 1905, p. 55, f. 22), not distinguished at Plymouth.

COTTUS BUBALIS Euphrasén [Day, 1880-84, I, p. 51, Pl. 20, 2]

Common inside and outside Breakwater, and enters estuaries (E.F.)

Spawning time, February-April; Young stages, Ehrenbaum, 1905, p. 58, f. 23: Post-larvae, March-June, especially March (F.S.R.)

Family **Agonidae**

AGONUS CATAPHRACTUS (L.) [Day, 1880-84, I, p. 67, Pl. 28, 1]

Common on inner grounds, occasional specimens in estuaries (E.F.)

Spawning period, March-April (R.S.C.); Young stages (Ehrenbaum, 1905, p. 75, f. 31): Post-larvae, March-May (F.S.R.)

Family **Cyclopteridae**

CYCLOPTERUS LUMPUS L. [Day, 1880-84, I, p. 179, Pl. 55]

Occasional specimens (E.F.)

Young stages (Ehrenbaum, 1905, p. 116, f. 51)

Family **Liparididae**

LIPARIS VULGARIS Fleming [Day, 1880-84, I, p. 184, Pl. 56, 1]

Not uncommon near low-water mark (E.F.)

Young stages, Ehrenbaum, 1905, p. 112, f. 49.

LIPARIS MONTAGUI (Donovan) [Day, 1880-84, I, p. 186, Pl. 56, 2]

Not uncommon near low-water mark (E.F.)

Young stages, Ehrenbaum, 1905, p. 109, f. 48; Fage, 1918, p. 119, f. 87.

12. *Labriformes*

Family **Labridae**

LABRUS BERGGYLTA Ascanius [Day, 1880-84, I, p. 252, Pl. 70 and 71]

Common among *Zostera* and on inshore grounds, Barn Pool and Yealm Est. (E.F.)

Eggs laid in nests of weed and bryozoa in rock crevices between tide-marks, below 13 ft. tide-level, spring and summer (E.F.): Young stages, Ehrenbaum, 1905, p. 6, fig 1, Ford, 1922, p. 693, f. 1 and 4: Post-larvae, April-July, especially June (F.S.R.)

LABRUS MIXTUS Kröyer [Day, 1880-84, I, p. 256, Pl. 72, 1 and 2]

Occasional specimens from rocky ground off Mewstone (E.F.)

Young stages (Ford, 1922, p. 693, f. 7); Post-larvae, May-July, especially June (F.S.R.)

CRENILABRUS MELOPS (L.) [Day, 1880-84, I, p. 260, Pl. 73]

Very common among *Zostera*, Barn Pool and Yealm (E.F.)

Young stages, Ford, 1922, p. 693, f. 2 and 5; Holt, 1890, Pl. 5, 49, as *C. rupestris*: Post-larvae, June-August, especially June (F.S.R.)

CTENOLABRUS RUPESTRIS (L.) [Day, 1880-84, I, p. 264, Pl. 74]

Fairly common; adolescents fairly common inshore with young of *Labrus berggylta*, *Crenilabrus melops* (E.F.)

Young stages, Ehrenbaum, 1905, p. 7, f. 2; Ford, 1922, p. 693, f. 9; Petersen, 1919, Pl. 2, 22 and 23: Post-larvae, June-September, especially July (F.S.R.)

CENTROLABRUS EXOLETUS (L.) [Day, 1880-84, I, p. 267, Pl. 76]

Fairly common on *Zostera* beds and on inner grounds; Barn Pool and Yealm Est. (E.F.)

Young stages, Ford, 1922, p. 693, f. 3 and 6: Post-larvae, June-August especially July (F.S.R.)

CORIS JULIS (L.) [*Day*, 1880-84, I, p. 269, Pl. 77, 1 and 2, as *Julis*]

Rare (E.F.)

Young stages, Ehrenbaum, 1905, p. 9, f. 3, Ford, 1922, p. 693, f. 8.

13. *Carangiformes*

Family *Carangidae*

CARANX TRACHURUS (L.) [*Day*, 1880-84, I, p. 124, p. 44]

Common on occasions (E.F.)

Eggs, June-July ; Young stages, Ehrenbaum, 1905, p. 27, f. 14 : Post-larvae, July-October, especially August (F.S.R.) : early forms under umbrella of *Cyanea* (E.F.)

NAUCRATES DUCTOR (L.) [*Day*, 1880-84, I, p. 127, Pl. 45]

A large number entered Cattewater with the ship "Pan," 1831 (*Day*, p. 29) : 18-20 m. S.S.W. of Eddystone, 24.6.14, by motor boat "Kathleen" of Fowey, 34.7 cm. (R.S.C. and E.F.)

Family *Zeidae*

ZEUS FABER L. [*Day*, 1880-84, I, p. 138, Pl. 48]

Fairly common on trawling grounds ; Cawsand Bay and Barn Pool (E.F.)

Young stages, Schmidt, 1908, p. 3, Pl. 1, f. 1-4 ; Clark, 1914, p. 350, f. 1 and 2 : Post-larvae, August, few only (F.S.R.)

Family *Caproidae*

CAPROS APER (L.) [*Day*, 1880-84, I, p. 134, Pl. 47, 2]

Not uncommon in trawl on outer grounds (E.F.)

Eggs, May-August ; Young stages, Ehrenbaum, 1905, 27, f. 13 ; Clark, 1914, p. 353, f. 3 and 4 ; Schmidt, 1908, p. 5, Pl. 1, 5 ; Holt, 1899, p. 26, Pl. 5, f. 43-48 : Post-larvae, June-September, especially July (F.S.R.)

14. *Perciformes*

Family *Serranidae*

SERRANUS CABRILLA (L.) [*Day*, 1880-84, I, p. 14, Pl. 4]

Rare ; small specimen Eddystone Gds., 16.6.30 (E.F.)

Spawning time, July-August (R.S.C.) : Young stages, Ehrenbaum, 1905, p. 18, f. 9 ; Clark, 1920, p. 205, f. 6 and 7 ; Fage, 1918, p. 26, f. 12-16 : Post-larvae, August-October, especially August (F.S.R.)

POLYPRION CERMIUM Valenciennes [*Day*, 1880-84, I, p. 17, Pl. 6]

One taken off Plymouth, 21.9.92 ; one sent from Mevagissey, same date (*J.M.B.A.*, Vol. 2, p. 396, 1892) ; S. T. "Stormcock," 8.10.26 (E.F.)

MORONE LABRAX (L.) [*Day*, 1880-84, I, p. 8, Pl. 2, as *Labrax lupus*]

Fairly common, especially "school" sizes. Off rocks on coast, and in estuaries (E.F.)

Young stages, Ehrenbaum, 1905, p. 16, f. 7, as *Roccus*.

Family **Sparidae**

CANTHARUS LINEATUS (Montagu) [*Day*, 1880-84, I, p. 26, Pl. 9]

One from Tamar 2. 7. 97 (E.W.L.H.)

BOX VULGARIS Cuvier [*Day*, 1880-84, I, p. 28, Pl. 10]

Specimen taken near Plymouth, 26.6.1872 (Day)

PAGELLUS CENTRODONTUS de la Roche [*Day*, 1880-84, I, p. 36, Pl. 13]

Once common, this fish is now only taken very occasionally (E.F.)

Family **Mullidae**

MULLUS SURMULETUS L. [*Day*, 1880-84, I, p. 22, Pl. 8, 2]

Occasional specimen only; outside trawling grounds; Barn Pool, R. Lynher (E.F.)

Young stages, Ehrenbaum, 1921, p. 21, f. 10.

15. *Scombriformes*Family **Xiphiidae**

XIPHIAS GLADIUS L. [*Day*, 1880-84, I, p. 146, Pl. 49]

Day, p. 148, a specimen 7 ft. 7 ins. long, weighing 147 lbs. taken off Plymouth, Sept. 1863. No recent records.

Family **Trichiuridae**

TRICHIURUS LEPTURUS L. [*Day*, 1880-84, I, p. 154, Pl. 51, 1]

Looe and Plymouth, several specimens (Day, p. 155): no recent records (E.F.)

LEPIDOPUS CAUDATUS Euphrasén [*Day*, 1880-84, I, p. 156, Pl. 51, 2]

Salcombe, 4.6.08, 5½ ft. long (Day): no recent records (E.F.)

Family **Scombridae**

SCOMBER SCOMBRUS L. [*Day*, 1880-84, I, p. 83, Pl. 32 and 33]

Common in seasons summer and autumn, hook and line in Sound and district; winter drift-net fishery (E.F.)

Eggs, spawning season, May-August (R.S.C.): Young stages, Ehrenbaum, 1905, p. 31, f. 15; Allen, 1917, p. 226, f. 4-7: Post-larvae, May-August, especially July (F.S.R.): adolescent stages from *ca.* 12 cm. taken during late summer and early autumn from sprat-seines (E.F.)

EUTHYNNUS PELAMYS (L.) [*Day*, 1880-84, I, p. 100, Pl. 37, as *Thynnus pelamys*]

One 20½ ins. long received from trammel net in Cattewater, Sept. 1876 (Day, p. 101)

AUXIS ROCHEI (Risso) [*Day*, 1880-84, I, p. 104, Pl. 39, 1]

Looe, 1843 (Day, p. 105): Specimen seined at Batten (Cunningham J.M.B.A., N.S., Vol. III, p. 275)

ORCYNUS THYNNUS (L.) [*Day*, 1880-84, I, p. 93, Pl. 35]

One 9 ft. long, Plymouth, 22.7.1873 (Day, p. 97): one 3 ft. long from mackerel nets off Plymouth, 19.9.94 (J.T.C.)

Family **Istiophoridae**

ISTIOPHORUS AMERICANUS Cuv. & Val. [*Norman*, 1929, p. 68, f. 1 and 2]

A specimen of the sailfish (new to British fauna), 2.26 metres in length, was taken in a dying condition in the Yealm Estuary, about a mile above the Yealm Bar, on Aug. 17th, 1928 (see above reference).

Family **Bramidae**

BRAMA RAJI (Bloch) [*Day*, 1880-84, I, p. 114, Pl. 41]

Rare (E.F.) : from trawler, 26.10.03 (S.P.) : from S. T. "Chanticleer," received, 10.10.13 (R.S.C.)

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